

MAKE WRITING BUREAU...



Issue 297

*...marking knife, chair
spindles, alcove
cupboard, turned box*

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- Solutions: Dave Roberts explores Savonarola Down Under
- Foundation course: Michael Huntley cuts a knuckle joint
- Around the House: Phil Davy makes an alcove cupboard



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Welcome

Hello! As you've probably gathered, Andrea has handed over the editorial reins to me, but she will be contributing features when the urge takes her. Phew! I've spent the last eight years beavering away on woodworking magazines, honing my skills. In fact, I love it so much that I jumped at the chance to take on a new challenge by becoming Editor on *GW*. I feel like an excited child in a sweet shop – or should that be workshop? So what have we got in store for you this month? Well, project-wise we kick off with a wonderful writing bureau, **p36**, before moving on to a table that requires great joint-making skills, **p58**; Phil Davy looks at alcove cupboards and shelving, **p74**, and Les Thorne turns a decorative pedestal box, **p80**. Michael Huntley's foundation course reaches knuckle joints, **p32**. Andy King's tests include Diamond Blocks from Trend, **p15**, Veritas custom planes, **p16**, and the Stanley FatMax drill set, **p20**, and Mark Cass reports on the new Bosch wireless system, **p56**, which is taking the industry by storm.

Our Centrefold on Sussex House, recently shortlisted for the Wood Awards, **p46**, precedes a gallery of shortlisted furniture, **p48**, and Barrie Scott travels to France to meet Rouen luthiers, **p62**. Enjoy!

Tegan Foley, Editor



Tegan Foley
Editor



Andy King
Technical Editor



Dave Roberts
Consultant Editor



Phil Davy
Consultant Editor

We endeavour to ensure all techniques shown in Good Woodworking are safe, but take no responsibility for readers' actions. Take care when woodworking and always use guards, goggles, masks, hold-down devices and ear protection, and above all, plenty of common sense. Do remember to enjoy yourself, though.

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Good Woodworking October 2015

Contents

Tools • Projects • Techniques • Advice



On the cover

68 **Woody strikes Gold**
Edward 'Woody' Harringman won Gold for the UK at WorldSkills in Sao Paulo. Find out more about the former Chichester College student on these pages

Blockwork 48

We take a look at Raw-Edges' colourful take on dyed wood; their work has been shortlisted for November's Wood Awards

Bosch wireless 56

This remarkable new technology is taking the power tool world by storm



The **BIG** project!

Projects

Write on! 36

David Long's oak writing desk will not only take weeks to make, but it requires great skill and mastery of techniques

Marking knife 58

Perfect dovetails require perfect marking out. Make Dominic Collings' knife and you'll be well on the way

Sweet charity 80

Les Thorne goes all arty with this delicate piece inspired by a thrift shop find

Techniques

Another day on Festive Road 24

Dave Roberts goes back in time, around the world, discusses the Savage jig and somehow features Mr Benn!

In defence of varnish 26

Stephen Simmons sticks up for these traditional finishes

Last job! 28

Jeff Gorman makes light of the last task of his chair project by creating a motorised turning engine for the spindles

Knuckle under! 32

Last month Michael Huntley looked at the rule joint used in making hinged flaps. This month he considers how the flaps are kept up

People & places

Centrefold 46

We take a closer look at the interior and exterior of Sussex House made using spruce, western red cedar and engineered oak

Best of the best 48

Andrea Hargreaves reveals the Wood Awards' shortlist ahead of the final unveiling of the winners in November

Fiddle makers of Rouen 62

If you can strum or bow it, then French violin makers can probably fix it, says Barrie Scott

Your favourites

News 8

Courses 12

WorldSkills Maker Special 68

Around the House 73

Next month 89

Finishing Touch 90

Good Woodworking

Andy King tests...

Trend Diamond Cross stones	15
Veritas custom planes	16
Stanley FMCK461C2 FatMax	20
Triton T12AD angle drill	21

Kit & tools extra

Wirelessly charged Bosch 18V combi	56
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Go to page 64



AUTUMN PROJECT

All neat & tidy

Phil Davy builds some handy alcove storage

74

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GW
298
ON SALE
16 OCTOBER

Wood Awards

shortlist highlights – the crème de la crème 48

5 STARS

Veritas custom planes

Andy King looks at these
new kits for bespoke
planes 16



FRENCH LUTHIERS

Fiddle makers of Rouen

Barrie Scott meets master
luthier Bernard Baptiste 62

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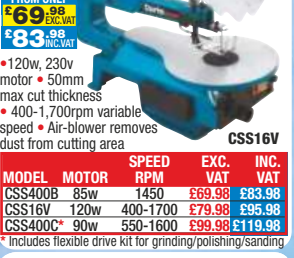
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MODEL	MOTOR	SPEED RPM	EXC. VAT	INC. VAT
CSS400B	85w	1450	£69.98	£83.98
CSS16V	120w	400-1700	£79.98	£95.98
CSS400C*	90w	550-1600	£99.98	£119.98

*Includes flexible drive kit for grinding/polishing/sanding



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Powerful heavy duty machine ideal for trade use

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CBG6RSC	HD	150mm	£49.98	£59.98
CBG6SB*	PRO	150mm	£49.98	£59.98
CBG6RWC	HD	150mm	£54.99	£65.99
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CBG8W features 8" whetstone & 6" drystone. # With sanding belt



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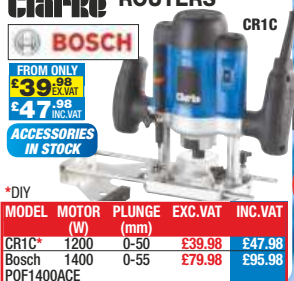


Clarke BOSCH ROUTERS

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£47.98 INC. VAT

*DIY

MODEL	MOTOR (W)	PLUNGE (mm)	EXC. VAT	INC. VAT
CR1C*	1200	0-50	£39.98	£47.98
Bosch	1400	0-55	£79.98	£95.98
POF1400ACE				



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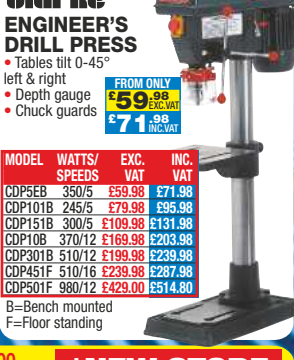
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MODEL	WATTS/SPEEDS	EXC. VAT	INC. VAT
CDP5EB	350/5	£59.98	£71.98
CDP101B	245/5	£79.98	£95.98
CDP151B	300/5	£109.98	£131.98
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CDP451F	510/16	£239.98	£287.98
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Good Woodworking News *from the bench*

Comment, insight, views and news of
woodworkers from around the globe



Arbortech Turboshaft carver

The Turboshaft is a power carving attachment that fits onto a 100mm or 115mm angle grinder. Designed to complement the Arbortech Turbo range or as a standalone tool, it provides the means to carry out detailed freehand carving and was developed to fill the gap between Arbortech's larger rotary carving tools and the detail capability of the power chisel or hand chisels. It is not

designed for rapid removal of wood like the larger tools, but is fine tuned for control as the last powered carving tool before reverting to chisels.

At 20mm in diameter and on a 70mm shaft, it brings the benefits of rotary shaping to tighter, deeper recesses. It has small replaceable carbide circular cutters that only cut at the very end of the shaft and can be

rotated to a new edge if and when they become dull. Although it can cut in any direction at the very tip, the shaft can be run along templates for accurate repeatable work or used freehand for carving or for shaping.

The cutters are limited in their exposure in all directions to prevent grabbing or gouging and it is not possible to push the shaft into wood like a drill. This facilitates a planing action at the very end of the shaft, which is very useful when doing detail work. However, if it is moved in a circular or a back and forth motion, it can be plunged deep into the wood. The minimum-diameter hole achievable is approximately 22mm.

Kevin Inkster, CEO of Arbortech and inventor of the Turboshaft, commented: "You really need to watch one of the videos to appreciate its usefulness, but you can think of it as a freehand router. I have found it great for doing very fast freehand signs, which can be done even faster and more accurately if I have templates prepared. Mostly though, I have used it for carving deep profiles in sculptures and, at one time, I did a small wooden jug where I used it to carve out the inside and through the handle".



New connector from Lamello

Those clever people at Lamello have come up with another fitting solution, the Divario P-18 connector, a self-clamping, sliding device which allows easy installation of dividers or shelves into a fixed frame or structure.

It requires no glues or clamps to produce a joint with no visible connectors or shelf pin supports. Slide the shelf into place and the Divario forms a tight-fitting, flush joint.

Just cut a groove on the edges of the shelf along with a P-slot for the body of the connector. The other half of the connector fits into a pair of 8mm-diameter holes drilled into the side supports. The connector supports the shelf or divider during insertion and final assembly requires no further use of tools, glues or clamps,

meaning on-site assembly from flatpack form is an option.

This narrow connector allows use in shelves from 19mm thick and sides as little as 12mm thick.

Cut the P-System groove for the connector either manually in a workshop or on site using a Lamello Zeta P2 machine or with CNC machinery in a factory.

An installation tool ensures that the alignment of the body of the connector is correct after the P-18 has been placed in the slot. A sharp tap with a hammer sets the positioning pins, keeping everything in the perfect position.

For more info contact the Axminster Business Services Team on 03332 406406 or email abst@axminster.co.uk



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TOOLS

Makita 18V brushless

Makita is continuing to extend its range of 18V lithium-ion-powered cordless tools that feature brushless motors. Reduced friction within the motor results in greater engine power, extends battery runtime and generates less heat.

The new DFS452 LXT screwdriver generates a maximum of 490W and will run up to 4,000rpm. The 1/4in hex push-drive shank will drive home a 5mm drywall screw or a 6mm self-drilling screw. Weighing 1.7kg, and with soft-grip handle, this screwdriver has a silent clutch, variable-speed trigger, one-touch locator and lock-on button and reverse switch option. Delivered in a type 2 Makpac connector case with two 18V



4.0Ah Li-ion batteries and DC18RC fast charger, the DFS452 also features a battery fuel gauge, on-off job light and belt clip.

The DHS680 165mm cordless circular saw runs off a 4.0Ah 18V Li-ion battery and produces 680W of motor power that will run the 165mm blade up to 5,000rpm without load. Automatic

Speed Control matches the cutting speed ideally to the load condition for optimum cutting performance. Also included is a soft-start function, electric safety brake, electronic current limiter, twin LED job light and battery fuel gauge. A new larger base plate enhances operational stability with multi-angle selection. Maximum cutting depth at 90° is 57mm, 41mm at 45° and 37mm at 50°. A large lock-off lever fixes the cutting angle. A blower function blows sawdust off the cutting line for a clear view of the blade path, and Makita advises that a rear dust port should be connected to the dust extraction system.

The brushless motor is also featured in two new cordless angle grinders. For more info go to www.makita.com



Triton Router Track Adaptor

The TRTA001 Router Track Adaptor fits any Triton router to the precision guide tracks used with the Plunge Track Saw 1400W to create laser-straight, rebate or dado cuts where a regular fence attachment or even a router table would struggle – across the middle of a large sheet or fixed surface, for example.

A robust, chrome-plated, low-friction base plate and guide rails align and lock onto the track with micro and macro adjustability.

While designed specifically for the Triton guide track system and plunge track saw, the adaptor is 100% compatible with Festool and Makita track rails.

Triton routers include the JOF001 Compact Precision Plunge Router 1010W, the MOF001 Dual Mode Precision Plunge Router 1400W and the TRA001 Dual Mode Precision Plunge Router 2400W.

The adaptor costs £34.98 plus VAT from stockists. For more info visit www.tritontools.com

Trend L-class extractor

Trend has launched the T31A powerful semi-professional wet & dry Class L auto-start vacuum extractor with power take-off. It features a 1400W silenced motor – maximum 1600W – power tool take-off with auto-start feature of up to 2200W and a 5-second run-on delay, 35l impact-resistant plastic container with castors, 7m power cable, floor-cleaning kit, power tool adapter, crevice and upholstery tools and no-foam filter.

Trend's Head of Marketing, Luke Hulley adds: "We have been listening to our loyal customers' feedback and the demand has been huge for a powerful semi-professional vacuum. The T31A certainly packs a punch with its 1400W silenced motor. It's ideal for workshop, garage and light trade applications." For more info visit www.trend-uk.com



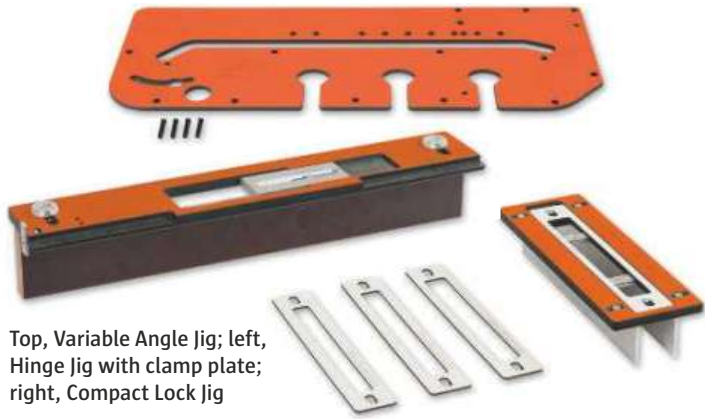
Axminster Trade series extractor

This wall-mounted dust extractor is designed for small workshops, woodturners or for connecting to a standalone machine. Its 1hp motor generates 1,000m³/hr of airflow and is fitted with a 1 micron-rated cartridge filter for chippings, coarse and medium fine dusts.

The collection bag is clipped to the bottom of the filter. Larger bags can be fitted but the user will need to support it underneath on the floor as the weight of a full bag may pull it off the filter. The filter has a crank handle operating a paddle to keep the interior clean, which should be used periodically to maintain filter efficiency.

It is important to make sure the wall is capable of supporting the extractor's weight. It costs £319.96 inc VAT. For more info go to www.axminster.co.uk





Top, Variable Angle Jig; left, Hinge Jig with clamp plate; right, Compact Lock Jig

New jigs from UJK

New products are now available in the UJK Technology range. First launched in 2012, this range of routing, measuring and wood-jointing products is designed in the UK by Axminster Tools & Machinery and then manufactured in the Far East.

Compact Lock Jig

This adjustable lock jig is made of 12mm-thick high-pressure laminate, dimensionally stable and comes with a lifetime guarantee never to warp. It is fully adjustable for locking faceplates up to 175mm in length. The jig includes four interchangeable templates to cut mortise and faceplate recesses for popular door sash, mortise and deadlock sizes.

To set up, mark the centre line of the door and the centre line for the lock. The mortise will be parallel with the door face ensuring that the parts are then square for easier handle fitting.

It is suitable for doors up to 58mm thick. The user will require a ½in router with a 12.7mm (½in) straight cutter (long reach if possible) and a 16mm guide bush, two clamps to hold the jig in place and a screwdriver to adjust the settings. It costs £85.95 inc VAT.

Hinge Jig with clamp plate

This single-aperture hinge jig is lightweight, easy to use with minimal setup time and suitable for all doors. Once set for the size of hinge, cutting the recess on the door frame requires no further adjustment. Its body has engraved markings for easy measurement and setting. Also made of 12mm-thick high-pressure laminate, additional parts are made of aluminium. It is suitable for hinges from 50mm to 127mm long and with leaf widths between 6.5mm and 35mm. The end datum stop controls the 3mm gap between the top of the door and frame. The jig comes with the clamping plate accessory and step-by-step instructions. Additional tools required are a ½in router, 12mm straight cutter, 16mm guide bush, screwdriver and two bradawls or two clamps. It costs £69.95 inc VAT.

Variable Angle Worktop Jig

This single jig is capable of 45° and 90° left- or right-hand joints in worktops with widths ranging from 250mm to 700mm. It enables the user to make peninsular joints, 90° square end cuts plus 45° and 22.5° angle cuts. In addition, there are facilities for cutting 35mm cabinet door hinge recesses (18mm carcass), a hole for tap fixings 35mm (½in BSP) and three slots for 65mm and 150mm joining bolts. The jig is CNC cut from 12mm-thick solid compact laminate. Permanently engraved into the top are instructions, diagrams and pin-hole locations.

With the addition of the optional accessory, the angle adjustment plate, the jig will cut left- and right-hand joints between 85° and 95°. The angle adjustment plate sits in the slot provided and adjustment is made to change the angle of the male joint. With the addition of the plate, you can use the jig to find and set the angle required. It comes with instructions and four aligning pins. The user will also need a ½in router, 12.7mm (½in) × 50mm router cutter, 30mm guide bush and two clamps. It costs £94.94 inc VAT.

For more info on all these jigs go to www.axminster.co.uk

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COURSE DIARY

Come on, the leaves are starting to turn and its time to think of enhancing your skills, the better to enjoy your workshop this autumn.

October

1 Turning pepper mills (Sittingbourne)

6 Bandsaws (Axminster)

7-8 Bowls & platters (Axminster)

13-14 Beginner woodturning (Sittingbourne)

16 Intro to Leigh jigs (Axminster)

22-23 Nutcracker wooden figures (Axminster)

26-27 Beginner woodturning (Axminster)

Axminster Tool Centre
Unit 10 Weycroft Avenue
Axminster

Devon EX13 5PH

Tel: 0800 975 1905

2-4 Hand-cut dovetails

11-16 Double-bow Windsor chair

23-25 Steam-bent, inlaid tray

West Dean College

West Dean

Nr Chichester

West Sussex PO18 0QZ

Tel: 01243 811301

17 & 24 French polishing

Peter Sefton Furniture School

The Threshing Barn

Welland Road

Upton upon Severn

Worcestershire WR8 0SN

November

2-6 Sack back (American double bow)

16-20 Settee

The Windsor Workshop

Churchfield Farm

Church Street

West Chiltington

Pulborough

West Sussex, RH20 2JW

28 Open day

Peter Sefton Furniture School

The Threshing Barn

Welland Road

Upton upon Severn

Worcestershire WR8 0SN

2-3, 9-13 Beginner woodturning (Axminster)

5 Intro to Leigh jigs (Sittingbourne)

9 Kitchen door/jointing (Axminster)

19-20 Beginner woodturning (Sittingbourne)

10-11 Beginner routing (Sittingbourne)

19-20 Woodcarving (Axminster)

24 Christmas decorations, gifts (Axminster)

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29 Nov-4 Dec Advanced furniture making

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Festool Unplugged

Look out for the truck bringing the Festool Unplugged show to a tool store near you this autumn. Within the truck will be all this year's new products as well Festool's complete range of cordless 18V tools and dust extractors.

Visitors can participate in a competition to win prizes including a 90-year anniversary limited edition CXS cordless drill and classic men's chronograph watch, plus new HKC cordless portable circular saw.

Find the truck at the following dealers:

18-19 Sept – Healy's, ED Elson, St Albans, AL1 5UG

21-22 Sept – Taylors Tools, Kings Langley, Herts WD4 8BS

23 Sept – Frank Howard, Braintree, Essex CM7 3RU

24 Sept – Toucan, London E10 7QL

25 Sept – Folkestone Fixings, Folkestone, Kent CT19 5EY

28 Sept – Brighton Tools and Fixings Ltd, Brighton BN2 4AW

29 Sept – Axminster Tools, Basingstoke, Hampshire RG22 6HN

30 Sept – Bunny's Bolts, Woking GU22 9AA

1 Oct – Elliott's Tools, Winchester, Hampshire SO23 7FA

2 Oct – Mile's Machinery, Yeovil, Somerset BA21 5HR

3 Oct – Data Power Tools, Cardiff CF5 5TF

For more tour info go to www.festool.co.uk/roadshow



Students on a residential week at Hooke Park forest at work on the project

Twist at Timber Expo

Proving that timber can be both a functional and aesthetically stunning design material, TRADA has teamed up with the Architectural Association's (AA) School of Architecture to create a wooden pavilion that it hopes will steal the show at this year's Timber Expo, part of UK Construction Week, at Birmingham NEC from 6-11 October. Named The Twist, the project is a collaboration between students from the Emergent Technologies and Design Programme at the AA and timber authority TRADA, and explores the bending and twisting capacity of timber by integrating structural and spatial performance into one elegant architectural solution. Built from 6mm and 4mm birch plywood supplied by Hanson Plywood, the pavilion will also be seen at Bedford Square, London in January 2016.

Open day

Southern Fellowship of Woodworkers has an open day at The Cross Barn, Palace Gate Farm, Odiham, Hampshire RG29 1JX on 3 October.

Machine Mart catalogue

Machine Mart's Autumn/Winter 500-page catalogue features more than 1100 price cuts and new products. Latest arrivals include the new Eton range of Clarke woodburning steel stove: featuring integral log storage, a new folding mitre saw stand making it easy to store and wheel around a workshop and a new range of Clarke manual log busters, perfect when no electricity is available! A total of 15,000 items is available in UK stores. Order from www.machinemart.co.uk or call 0844 880 1265.



'Groundbreaking instruction'

Writing in American magazine *Popular Woodworking*, Chris Schwarz – who has been in the UK during summer courses at Leamington Spa and at David Savage's Rowden workshop – describes North Devon-based tool and technique guru David Charlesworth's new video on secret mitre dovetails as giving groundbreaking instruction.

"The secret miter [sic] dovetail is considered the most elegant and most difficult of all

dovetail joints to make. As a result, many woodworkers hesitate to even attempt the joint, which can seamlessly wrap the grain around a furniture carcass to a beautiful effect." In this video, he says, David dissects it to present it as a joint that any woodworker can make with a little care.

"In particular, David offers some useful insights that I've never seen discussed, including: how to easily set your chisel perfectly

horizontal and properly angled when paring a dovetail; how to use two parallel baselines in your dovetailing to improve the joint's accuracy; using a small scrap to reliably undercut portions of the joint to 1° – a trick I will begin using immediately; plus, how to assess the fit of the joint using a bench light to show areas that need paring before you even do a test-fit."

The Secret Mitred Dovetail is available from David's website at www.davidcharlesworth.co.uk

Good Woodworking Free Reader Ads

Machinery

Record CX3000 chip and dust extractor, 3/4hp motor, 450mm bag diameter, very little use, £150 ono

Mr PR Mayhew, Norfolk ☎ 01493 782408

ET JTS – 250S table saw with 250mm diameter blade, with JET universal mobile base, £230, buyer collects

Reg Lloyd, Essex ☎ 01708 727388

Tormek Supergrind 2000 6 jigs, planer jig, excellent order, £390; Multico mortise K1, four chisels, clean, tidy, heavy, £225

Mr RF Ridgewell, Surrey ☎ 01372 275062

DeWalt DW1251 radial arm saw, excellent condition, hardly used, includes legstand, buyer collects, £250

David Banks, Cheshire ☎ 01606 551747

Hand tools

Stanley No.4 smoothing plane, in box, £35; Stanley No.50 combination plane with blades, in box, £55; Record No.120 block plane, £18; Hobby thumb plane, £20; Stanley No.151 spokeshave, flat, £15; Stanley No.151 spokeshave, round, £15; all + P&P

Mr D Haviland, Surrey ☎ 0208 641 4238

Stanley No. 9 1/2 block plane, excellent condition, £70; Cox adjustable bench plane, infill rosewood, brass clamp, £100

Harold Cox ☎ 01283 563798

Power tools

Draper 16in fretsaw, little used, £25

John Glancey, Durham ☎ 01207 563651

Bosch GHO 31-82 240V power plane, angle guide, spare blades, dust bag & case, £60; Fein Dustex 25l dust extractor, latest model, little used, £85

Mr I Wilson, Kent ☎ 01322 526897

Miscellaneous

Victorian stripped pine shutters and architraves, sound condition, ex mansion, various sizes; some modern yew wood 3 x 3ft, offers invited

Mr R Barnes, Berkshire ☎ 01189 733764

Mk II Jointmaster sawing jig for cutting wood to differing angles and depths, with instructions, £5; set of plans for medium fully carved rocking horse by Anthony Dew, suitable for 3- to 8-year-old, £5; Arcoy Rabetter, old machine for cutting rebates using wobble washers, included, and electric drill, not included, £5

Roy Holly, Hampshire ☎ 01256 415247

Wanted

Scheppach 2m rail for TS2500ci sliding carriage

Peter Clements, Oxford ☎ 07803 025985

Switch unit for DeWalt DW1201 Radial Arm Saw, Weber Unimat WTN22-555 rated current 4A

David Cook, Worcestershire ☎ 01562 66497

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New products, tools and tests

Andy King, Technical Editor
andy.king@mytimemedia.com

Diamond geezers

These support blocks weren't available when I first looked at the Diamond Cross stones, so here they are now...



▲ The blocks allow the hones to sit flat while still allowing you to hold them firmly



▲ Used with the bench stone the rubber construction keeps everything secure to the bench

The support blocks are a clever design that takes into account the handles on the smaller stones, giving full support underneath with the handles sitting perfectly into the recesses for maximum support as well as lifting the stones clear of the bench for easier honing applications.

A couple of rare earth magnets within each block secures the stones firmly to each block as well as having an interlocking profile to make them credit card stone-compatible when linked as a pair.

With the stones secured to the blocks things become easier to control as the item being honed can be held with both hands if needed on the smaller stones as the block's rubber construction grips the work surface to keep things firmly in place.

In the case of the bench stone, the blocks have the all-important task of lifting chisel

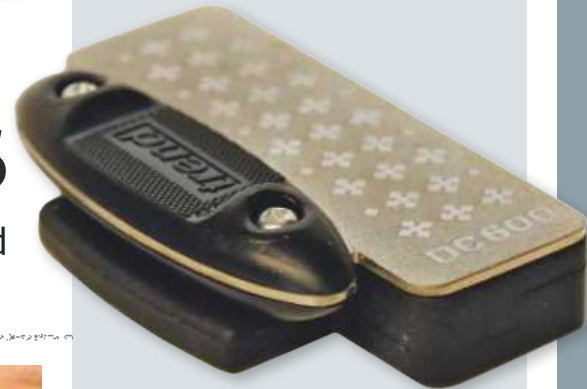


▲ Importantly, it also lifts the stone high enough so that chisel handles are clear

handles clear of the bench so that you can flatten or back off tools without the handle fouling.

Conclusion

Whatever stone you go for, these blocks make them all that bit better, and if you opt for the biggest of the stones as your start point, the excellent bench one, they come as standard.



▲ A single block supports the smaller stones perfectly



▲ They can also be interlinked as a pair



▲ This now supports the full-sized credit card hone

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Our product prices reflect typical values as we go to press. We cannot guarantee these prices, though, and thoroughly recommend that you shop around.

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- ★ Don't get your hopes up or your wallet out!
- ★★ Well, it works but really needs improvement
- ★★★ Performs well, but you will find better
- ★★★★ Great performance and value for money
- ★★★★★ So good, even Andy would get his wallet out!

Good The Woodworking Verdict

- + Makes the stones more adaptable; frees up both hands if needed
- None

Rating ★★★★★

Typical price: £9.96

Construction: rubber

Magnets: 2 per holder

Web: www.trend-uk.com

Build your own



Realising that standard just doesn't cut it with planes, clever Veritas is providing kits so you can customise to your personal preference

Veritas never fails to impress with its constant innovation, and this time around it has had a look at the good old bench plane and had a tinker with its configuration to allow it to be set up to suit your own work as well as customising the handles to suit your own preference.

In general terms, many of us woodworkers will simply buy a standard plane for pretty much everything and then maybe back it up with a more specialised one for other work if needed; higher- or lower-angled ones for different timber or applications.

With this as a start point it's where this

concept is aiming: offering a range of options, all within the same body casting. That still gives you a decision of body length as there are smoother, jack and jointer options, the first two available in the half sizes as well. Once you get past that, the fun starts!

Knobs & totes

Alongside the usual blade options, O1 or Veritas' PM-V11 steel, there are three front knob configurations and six – yes six, count 'em! – rear totes, allowing you to customise the feel of the plane to suit.

Of the six rear totes there are only two actual designs: the standard Veritas version and the traditional Bailey type, each in small, medium and large configurations to suit your own hand, and I certainly fall into the Bailey camp here as the Veritas ones have always been an area where I've never been a massive fan despite the Veritas slant on the reasoning.

I go for comfort first in this area, and there are all manner of discussions in online forums about push angles and so forth, about why one particular handle is better than another, but



▲ The Norris-style adjuster is beautifully engineered and works flawlessly

▲ Working on the iron requires the hex wrench



▲ Fully removing the cap screw allows the carrier to stay fixed to the iron for fast resetting



▲ Alternatively you can slacken both screws to let the irons slide apart



▲ The carrier is then held on the cap iron so both need to be nipped up when resetting



▲ You need a flat screwdriver to nip the side grub screws to the iron

personally I just tend to get on with it and do some planing as I can't really see any radical difference apart from comfort!

The front knob has a tall and standard ball-type option as well as a squatter mushroom style.

While I'd be unlikely to swap the rear tote once I'd settled on a style, the front knob is an area where I would consider it.

In general planing, where a full push is worked, a high or standard front knob allows a good grip but on edge shooting or similar I tend to tuck my finger under the sole as a guide with my thumb on the top on the front knob, so the lower mushroom option suits me here.

Frog options

But the more radical departure from the norm is the frog. Three standard options are available, a 40° low angle, a standard 45° or common pitch and a middle pitch 55°, but oddly, the 50° York pitch doesn't feature in the 'standard' configuration options.

However, across the pond in conjunction with these – for an extra ten dollars – you can have a frog made to any pitch in half degree increments between 40 and 65°, but Axminster is yet to offer this service in the UK.

I have to say though, I don't think any timber will yield much differently between a half degree difference in frog pitch. For example,

a 50° and a 49.5° one, so maybe this side of things is for the collector rather than a dedicated woodworker looking to tame a wild piece of stock!

Iron attachment

Equally radical is the securing of the cutting iron to the cap iron. Gone is the normal large slotted screw to conjoin the two; instead Veritas has come up with the 'blade carrier', a clever piece of work that remains on the blade as it is honed so that the setting position remains the same once reassembled.

The blade carrier nips up to the blade with a small cap screw while a second button-head screw secures the blade to the carrier once it's assembled.

Although it's easier to remove the button screw fully to do any honing, you can actually remove the blade by slackening both of the screws just enough to allow it to slide forward,



▲ Slackening the front handle adjusts the mouth for finer work

complete with carrier, and slip though the keyhole slot.

This of course means that the iron has to be reset to the cap iron every time so you need to determine which suits you best.

However, whether you choose to remove one screw fully or slacken both to slide, the need to use a (supplied) hex wrench to do so is a downside.

I'd be concerned that I would lose the screw in among shavings if fully removed so you need a careful regime in this area.



▲ This screw restricts the mouth to stop it clashing with the blade



▲ The mouth is set into the sole, preventing any dig ins



▲ The plane easily tamed a piece of rough-sawn wild-grained cherry



▲ Andy prefers the lower mushroom knob for shooting-type applications

Ideally a knurled thumbscrew would be a better option to the hex screw but I guess there may not be room under the lever cap for this, or insufficient pressure if one was used; I would assume the Veritas design team would have explored this avenue!

But there's more cleverness involved here: the plane can be used without the cap iron so there's no need to take any screws out at all, and in many situations it performs as well as it would with a cap iron so you can hone and get back to work in double-quick time.

More innovation

The hex wrench has a second area of use to remove the frog when swapping, with two set-screws holding it securely to the base casting.

Raised studs in the casting help locate the frog correctly when changing them over and it takes a mere minute or so to accomplish this.

Tapped into both wings is a pair of holes that takes the Veritas side fence, which can be used to help keep the plane square when shooting an edge, but with long registration surfaces on the wings it's equally at home on a shooting board.

These holes can then be utilised to fit a side handle to control the plane in an easier fashion, but you would need to make your own.

The usual twin stud screws are also set in the wings to nip the bottom of the cutting iron to

control the skew action when using the lateral lever, but here you still need a slotted screwdriver.

On this plane, with its need for the hex wrench adjustments and alterations, you'd think a hex screw would have been favoured; that said, once the studs are set there's rarely any need to adjust them again.

Conclusion

Tiny criticisms aside, this plane is an absolute belter when you get it on the bench and put it to work.

This is the 5½ jack version and the rear tote is set quite away back from the frog, which certainly gives ample finger room when gripping but I'm a dyed in the wool index finger on the frog planer, so I was thinking I would have a no man's land wagging finger or having to resort to a four-finger grip.

Happily, despite the short Norris-style adjuster, my index finger sits alongside this quite nicely.

I found it is also snug enough once the lever cap is locked down not to alter the skew from any inadvertent sideways pressure as I plane so it works a treat for general day-to-day planing without feeling alien in comparison to a traditional Bailey-pattern plane.

The Veritas mouth adjustment is again top drawer; a deft twist of the front knob allows you to quickly close or open up the mouth and

with the set screw set into the front of the mouth aperture, it is easy to restrict to fine setting so that the blade doesn't clash with the mouth when altering.

While the frogs are certainly an area that will sell the plane to the woodworker who uses a variety of species or has situations that need a different approach, the handle configurations are a great idea for getting a plane that fits your own needs that bit better and it's a great plane to explore and adapt to suit all manner of applications.

If you're on the hunt for a premium plane, this is an ideal one to buy for general use and you can then tinker with it at your leisure to set it up for other work.

Good The Woodworking Verdict

+ Customisable for grip and type of work; high-class construction; clever blade retention design

– Hex wrench for removing cap iron; cap iron screw needs to be completely removed

Rating ★★★★★

Typical price: £221.24-£306.27 depending on plane size and blade selection

Standard frogs: £39.13 each

Rear totes: £15.80 each

Front knob: £12.79 each

Web: www.axminster.co.uk

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triton
Precision Power Tools

tritontools.com

Sterling job



These two FatMax-branded tools have much to recommend them

Stanley owns DeWalt and Black and Decker so has exploited the technology to launch a set of machines under its higher end FatMax brand. This paves the way for a set of tools that sits between the DIY-aimed B&D and the professional DeWalt brands, and it looks like Stanley has done a sterling job with these two tools, available either as a set, as tested, or individually.

Impact driver...

Like the majority on the market the impact driver is basic in what it does, this one

comprising a decent variable-speed trigger to control the driving of finer and shorter screws while a whopping 180Nm of power takes the bigger screws in its stride.

A light squeeze of the trigger also illuminates the single LED to aid fixing positioning and this is also a common feature on the combi drill.

Similarly, both share identical battery status indicators on their bases with a bank of three LEDs showing how much juice is available.

Magnetic tool holders on both will hold a couple of drivers or drill bits.

The impact driver has a standard hex sleeve

chuck but lacks any magnetism to secure any screws; it does take 25mm bits directly to the chuck if space is really tight though, but these are simply a push fit and you need the relief collar of the longer bits or bit holders to lock them into the chuck.

...and combi drill

The drill still follows standard parameters of many a combi though, with a top-mounted gear slider and integrated torque/drill/hammer-function collar.

Rubber overlays on the casing as well as the grips help protect it from knocks and although the grips on both units are quite chunky they are sculpted, giving a comfortable feel.

The 13mm-capacity chuck is an all-metal sleeveless type and with capacities of 38mm in timber and 13mm in steel and masonry, and



▲ Indicators on both units show the battery power status



▲ Equally, both have identical magnetic bit holders on the casings



▲ 25mm bits can be used in the impact driver but aren't locked in the chuck



▲ A series of 35mm holes into beech with a Forstner was no problem



▲ The impact driver was at home with small screws here or 100mm ones directly into beech



▲ The shoulder bag has a useful set of loops and pockets for a few hand tools

Stanley FMCK461C2 FatMax & Triton T12AD

generating just over 51Nm of torque, is well spec-ed for a tool that doesn't break the bank.

There is a metal housing around the front of the gear slider but no indication of what lies beneath.

Usually manufacturers make a big song and dance about all-metal gearing but with nothing mentioned you have to assume some plastic parts, which helps keep the cost down.

Batteries

Equally, the kit comes with 2 × 2Ah batteries where 4Ah is the norm for the trade and pro 18V machines so these sit a little lower down the scale although there are 4Ah batteries available.

It doesn't detract from the performance of the drill, or indeed the impact driver though; they are both very well made and powerful tools and did all I asked of them at the bench with big Forstner bits and heavy-gauge screws.

The 1hr/2hr charge time dependent on Ah capacity is a downside for anyone looking to use these tools in a trade environment though, despite their ability to easily do so. A faster charger would be a distinct advantage here.

Conclusion

The crossover into the higher end of the DIY market is an area where the 'sheds' often battle each other with higher-end branded tools alongside the more budget-orientated own-brand type and Stanley has certainly gone for the jugular with this range.

The sheds undoubtedly see value in the power and back up of the brand as it's where you can easily track down the FatMax powertools.

And with 3-year warranties on all the FatMax power tools and the background of the company, there's plenty of good reason to look closer if you want a branded tool at a well-targeted price band.

Oh, and let's not forget the nifty shoulder bag it comes with!

Internally it holds both tools and charger easily as well as having some very useful pockets and elasticated loops on the outside to hold a few smaller hand tools or accessories.

Good The Woodworking Verdict

+ Powerful kit at a decent price; useful shoulder bag

- Supplied with 2.0Ah batteries; long battery charge time

Rating ★★★★★

Typical price: £224.99

Charge time: 1hr for 2.0Ah batteries

Drill

maximum drilling: 38mm wood, 13mm steel, 13mm masonry

torque: 51Nm

hammer blows: 6800/27200BPM

Impact driver

torque: 180Nm

impacts: 0-3100 BPM

Web: www.stanleytools.co.uk



Packs a punch

If you are looking for a straight forward-and-reverse machine then this one should please

With some manufacturers offering tools that have interchangeable chucks you begin to question the validity of standalone specialist tools such as the right-angle drill. But of course, such drills are usually designed as an add-on to an already established tool kit so should still find favour in many boxes. Triton's 12V option has the advantage of keeping things very slim, which is definitely an asset in areas where it gets a little tight and you need a good grip on the tool.

And despite the lower voltage it still packs a decent punch: 22mm maximum diameter in timber which is only a few millimetres less than some of the professional-rated 18V models.

It only has a single speed all-metal gearbox to achieve this though and won't win any races with its 620rpm motor, but with its 10mm-capacity sleeveless chuck it has an overall head length of 105mm without any accessory fitted so it will get into some pretty restricted spaces, and I had decent control through the variable-speed trigger to drill and set screws consistently.

The 295mm-long body has the paddle switch set with its pivot point central so the operation is lower down the tool which also keeps wrist strain to a minimum, and the trigger was easy to operate either as a finger grip or inverted and using the thumb so there's good scope to alter hand positions as needed.

As with most manufacturers now, there's a range of tools that take the same battery platform and Triton don't cut corners on the cells used within them, opting for high-quality



▲ A small LED provides enough light to help position the tool if needed



▲ The tool is very basic, having only a forward/reverse button and variable-speed trigger

Sanyo ones to provide the power.

Equally, the motor used in this drill is from Mabuchi, the global leaders in this area, so there's some decent stuff going on inside the machine to ensure consistent performance.

Conclusion

This is a simple machine that comes in at a price that's affordable but with great specs and is especially suitable for smaller work in tight spots, which it does well. Battery charge time is one hour for full capacity but you get 80% capacity after 30 minutes of charge.

Good The Woodworking Verdict

+ Top-quality cells and motor, good power under load, slim profile

- Single gear so quite slow

Rating ★★★★★

Typical price: £110.00

Battery: 12V Li-Ion 1.5Ah

Chuck capacity: 10mm

Max capacity timber: 22mm

Speeds: 0-620rpm

Web: www.tritontools.com/en-GB



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Good Woodworking Solutions



Tell me if I've said this before, but I sometimes wonder if it was a freelance scribbler that was the prototype for *Mr Benn*, Festive Road's most famous resident who had a bowler hat but never – as far as I could tell anyway – any business of his own; instead, he happily filled the days wandering in a well-meaning way into everyone else's. Over the years, I've indulged the same cheerfully peripatetic curiosity, and have never ceased to be amazed by the 'worlds within worlds' revelations of people's pursuits and pastimes...

Dave Roberts, Consultant Editor

Another day on Festive Road

...and the way that they span the generations. They're definitely one of mankind's redeeming features. In fact, I'm prepared to bet that there's a correlation between variety of peaceful pastimes like cabinetmaking, turning, etc, and the stability of a society, not least because they're a counterbalance to work; they're a time – as Laurie Lee said at the conclusion of his commentary for the 1939 documentary, *Spare Time*, by Humphrey Jennings (Mr Benn with film camera) – “when we have a chance to be most ourselves.”

This little gem of a cinematic time-capsule is available on YouTube, through whose 21st-century window we can look back to a very different world, though one that would perhaps have been more familiar to one particular chap who once made and sold furniture on the Commercial Road in the East End, and became great-grandfather to Tony Scott, who recently sent me a note.

Tony ('Bodger' Scott to readers of *British Woodworking*) wrote, further to last month's Solutions, to share a version of the Savonarola chair that his father, “a retired soldier who was living in Sydney at the time, made himself out of Tasmanian oak, reconstructing the design from a single photo in an old magazine. The chair – unlike the one you saw in Italy – is sturdy enough to stand on, and now sits in my London home.”

Tasmanian oak? Hasty reference to Terry Porter's *Wood Identification & Use* tells me that this can refer to the timber of three types of eucalyptus, whose 'grain is typically straight, but can be wavy or interlocked'; in terms of stiffness – it's ability to carry loads without bending – Tasmanian oak, so-called,



Andrea Hargreaves' leaving party, no wait, sorry – a still from Jennings' cinematic time-capsule

is stronger than y'r actual English oak. It sounds ideal, then, for making the slender legs of this elegant Savonarola, which – unlike some over-engineered examples I've seen – combines strength with a lightness of touch. More elegant still is the fact that, rather than the threaded steel rods used in the plan shown last month, the interleaving slats of the folding seat pivot on wooden dowels capped with oak diamonds. In fact, there are no metal fixings of any kind: the back – which has to be detached from at least one arm to allow the chair to fold – swivels on a pin where it's secured by a removable peg, both of which are made of wenge. The fact that his father had only one photo for inspiration, and we now have three, makes his letter something of a thrown gauntlet, don't you think?

Anyway, by the time his father retired to Sydney, Tony continued, he himself had been living there for several years, and had been busy using local timbers, such as the straight-grained Queensland maple as well as the



Made by his father from Tasmanian oak, Tony Scott's version of the Savonarola design shows how elegant these chairs can be

dense eucalyptus, to make furniture of his own. Though he insists that, "I've never been anything more than an enthusiastic amateur woodie" – an early career in newspapers and book publishing surely qualifies him as another sort of Mr Benn – his involvement in this pastime has served to continue the straight line that joins members of at least four generations of his family.

Different times & places; same spot

Across that span of time, of course, and all the way from the East End to Sydney, the bench would have been a view that they'd all have shared and recognised because it is, as I never tire of pointing out, what wise old Jacques-Andre Roubo called, "the first and most necessary of the woodworker's tools." John Brown, the chair-maker and one-time *GW* stalwart, and furniture-making grandee David Savage have variously described the bench as, "the very hub of success," and as, "a gigantic jig that holds the workpiece for you, enabling you to set yourself in balance so that you can cut the joint, or plane the piece of wood, or do whatever other operation you require."

I'm sure that both would agree, though, that you need the best bench you can afford or – better still – that you can make, because besides weight, the ingredients of 'best' involve a bench being the right height, with vices usefully positioned for the work you want to carry out. Building your own bench, then – a cornerstone of many of the long woodworking courses out there – allows you to tailor its design to suit yourself.

By way of a starting point, however, I thought it'd be useful to provide some sort



Better still, its folding parts pivot on oak dowels capped with decorative diamonds

of template, and since I'm off shortly to drop in on David – who's running a two-week summer school at Rowden together with US maker Chris Schwarz; more next month – here's a design that he himself has used as a blueprint for making that Savage 'jig'.

Blueprint for success

The underframe of the Savage bench is constructed from iroko, while the top is made from maple. Though not shown on the plan, the end frames are assembled with conventional mortise & tenon joints; the front and back rails that connect them, meanwhile, use through-wedged mortise & tenon joints. Made well, these joints will give the bench the necessary rigidity to withstand the push and pull of woodworking, but also allow it to be dismantled and transported – if we're allowed to mention transportation in the same column



When the chair's folded, the back swivels on a wenge pin where it's secured by a removable peg

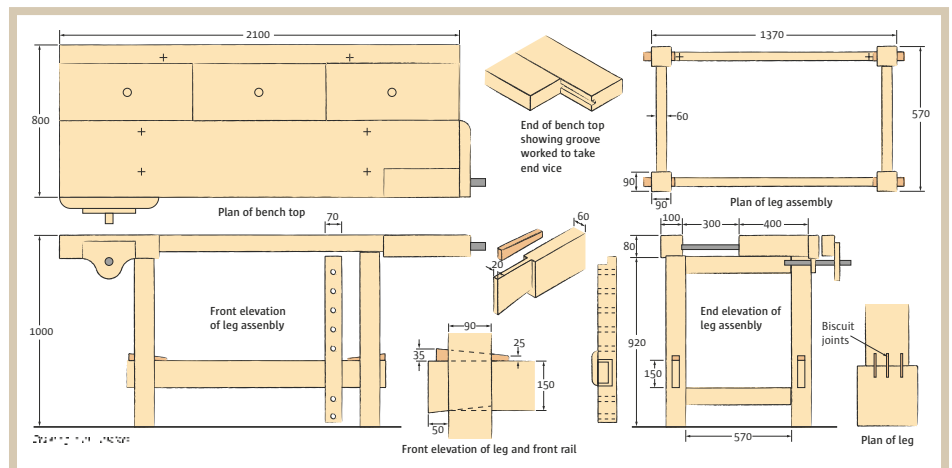
as Australia... The drilled upright on the underframe, by the way, is intended to take holdfasts or stops to support work held in the vice.

The top is made up by edge-jointing the maple boards; when you prepare their mating edges, aim to hollow them fractionally so that their ends touch but show a gap of about 0.5mm in the centre. This minute curve will set the ends of the joint in compression, and help to prevent them opening up should the timber be subject to movement. Fitting loose, plywood tongues into stopped grooves in the boards' mating edges will further help.

Because, as David maintains, "accurate workmanship can only be achieved with a dead flat top," the worktop should be checked for wind before it's attached, together with the points of contact between the underside and the underframe to ensure that they're all flat and level. A seasonal check thereafter helps keep things trued up.

The drawing includes a detail showing the provision at the right-hand end of the bench for an end or tail vice for bench dogs, and a tool well.

There. In no longer than it takes to watch a Mr Benn cartoon, we've been back in time, around the world, orbited the very hub of woodworking success; and now, as if by magic, the end of the column appears...



The Savage jig: a good bench will, "hold the workpiece for you, enabling you to set yourself in balance so that you can cut a joint, or plane the piece of wood, or do whatever other operation you require"

In defence of varnish

Stephen Simmons sticks up for these traditional finishes

If you're a novice restorer it can be easy to be misled by popular myth and prejudice, with the various attitudes towards varnish a perfect example of this. In recent years it has become a derogatory term, shorthand for that cheap, dark, treacherous finish that has to be stripped off at all costs. In this case, however, the common consensus has got it quite wrong. A quick canter through the history of wood finishes should explain how this misunderstanding has come about and, I hope, will set you off on the right road.

A little history

Before the 20th century there were five traditional finishes, with six if gilding is included. The choices for everyday furniture were restricted to wax, oil, paint, oil-based varnish and spirit-based varnish, with shellac (French polish) being the most notable of the latter. Oil-based varnish preceded the spirit variety in common European use; indeed there are many references to it in the 16th century when linseed, poppy and walnut oils were all used. John Evelyn refers to a 'joyners varnish' and the use of juniper oil in his 1664 work *Sylva*, along with the introduction of spirit-based varieties from the east as trade and the

► The Victorians' liberal use of varnish may mean that some chairs contain a hidden past



Did you know

...that The Getty Conservation Institute in Los Angeles is setting up a reference collection of commercial furniture varnishes in use since the 19th Century? The world of varnishes is changing rapidly, with health and safety concerns about volatile organic compounds pushing a whole range of traditional varnishes to the verge of extinction while encouraging the development of new ones. The Institute wants to develop as comprehensive a catalogue as possible for posterity before it's too late. Art Kaplan is one of the project leaders, and is contactable by email, at akaplan@getty.edu

accompanying passion for all things oriental grew rapidly. John Stalker and George Parker developed the theme in their more specialised *Treatise on Japanning and Varnishing*, published in 1688.

Continuing development

The quality of oil-based varnish improved throughout the 18th century as oriental techniques became better understood and adapted for European climatic conditions. The use of dryers was particularly important in this period, and competitions were sponsored in Britain to produce high-quality transparent and colourless finishes to rival France's famous *Vernis Martin*.

Outdoor coats

These varnishes were robust and hard-wearing, and were usually for external as well as internal use: on coaches, carriages and metalwork as well as furniture, pictures and musical instruments. Varnishers tended to work this whole range rather than specialise, though their work was highly skilled, with the manufacture just as exacting. Resins such as copal or damar had to be dissolved in oil, commonly linseed, and held at a constant specific temperature for a precise time. The quality and proportions of ingredients varied

► It can be difficult to tell whether the varnish is the original treatment or if the piece has been repurposed for the sake of Victorian fashion



Tip

Oil- and spirit-based varnishes can look very similar. To distinguish between them, rub a concealed part with meths. If the surface becomes sticky, it's a spirit-based varnish.

widely depending on the application – the highest-quality varnishes tended to be more elastic, contained substantially more damar, and were always expensive.

A French invasion

Fashions change, however. The popularity of the less robust spirit-based French polish in the early 19th century eclipsed the use of oil-based varnish for the finest furniture. Relative costs may have had something to do with it too, though oil-based varnish remained in wide use in its original form well into the 20th century, when it got a new lease of life in the form of polyurethane.

Higher standards

The fact is that the original oil- and spirit-based varnishes were recognised as high-quality, expensive finishes. They were often coloured – with alkanet, gamboge and turmeric, for example – but were clear rather than opaque and tended to enhance the wood rather than obscure it. In short, they were the exact opposite of the current notions of varnish as a cheap, tacky solution.

Colouring perceptions

So how did this change come about? The answer is a combination of fashion and economics, and again there's the opportunity for some Victorian bashing. Among other things, the Victorians were fond of dark mahogany finishes, and to indulge their tastes they added opaque earth pigments to their varnishes. Their use was further popularised by mass production and a growing urban market,

and progressively vulgarised by economies in production and short-cuts in application. It is these gloopy finishes which tend to be associated with varnish today, rather than older, higher-quality work. This was reinforced by the nasty habit of the Victorians, as well as their Williamite predecessors and their Edwardian successors, of re-coating a lot of existing furniture using these same methods.

Glossing over the past

I recently came across a good example of how widespread this unfortunate practice was in the catalogue of the furniture in Sir John Soane's Museum in Lincoln's Inn Fields, London. Soane is regarded by some as the father of the architectural profession, and so

must be credited with some aesthetic sensibility, but at some point in the 1820s or early 1830s even he saw fit to daub a pair of early 18th century softwood pier tables in the style of William Kent with an almost black mixture to create the mahogany effect. Research now tells us that the tables were originally painted white over a red primer to give a stone effect, with the catalogue now quite rightly placing the word varnish in inverted commas. This gunge has now been removed to reveal as much of the original finish as possible in line with current conservation practice.

Original sins

Here we find a conundrum for restorers. What if this gungy finish happens to be the original? It may not be to one's own taste but it is authentic. Do you lose more than you gain? To strip it off is really just to replace one fashion with another, and if it is stripped the discovery may be made that lurking beneath the pigmented varnish the timber is not of a consistent quality or even species. In the past I have known a Victorian 'mahogany' table to be made of pine, beech and ash – again, the economies of production.

Creating a Victorian varnish

If, however, you do want to replicate or patch one of these finishes it's easily done – follow the original practice and add earth pigment to your varnish after the initial sealing coat. Gauge the amount and appropriate colour with a trial run on a scrap piece of wood; some combination of Vandyck brown, red oxide, vegetable black and raw umber will usually suffice. The finish can often be a little on the matte side, but a final coat of unpigmented varnish will usually overcome the problem.

It's my hope that this has helped to clarify the varnish issue. Varnish shouldn't be a dirty word in restoration, or indeed anywhere else, but sometimes it can be hard to struggle against popular myth and prejudice.

In this example, removing a fixture makes it clear that the great looking original coat has been daubed over



Last job!

Jeff Gorman makes light of the last task of his chair project by creating a motorised turning engine for the spindles

When a youthful, but untutored interest in making country chairs led me to try turning their back legs on an ordinary woodturning lathe, I soon found that tool chatter was, for me at least, quite unavoidable. This difficulty is due to the whipping action induced by end-to-end pressure between the head and tailstocks. This is supposed to be overcome by mounting a 'steady'. I say "supposed", having experience of several unsuccessful trials of steadies made from magazine illustrations. Since there are always many other ideas to try, I followed other interests until a colleague lent me a wooden rounder (rotary plane) and a rather primitive trapping plane.

I replaced the borrowed tools by making my own examples, and to try them out I made a chair for my wife (Pic.1) that incorporates many slender spindles. At that time youthful penury ensured that it was made with a simple turning engine. From the moment the job was finished, I felt I really ought to make a successor that recognised that the legs would look better if tapered and I should improve the proportions of the individual parts to the whole. The slender arm supports did not inspire confidence in some guests and the foam and Pirelli webbing seat was, to say the least, unconventional for this style of chair. But in one's youth, conventions are there to be challenged aren't they?

I suppose that 45 years is a long time to nurse a good intention, but retirement has offered the opportunity to use some of the ash put aside for a successor. In the back of my mind has also been an idea for a trapping



◀ Pic. 1 Jeff's first chair was built with workshop-made 'rounders' and 'traps'



▲ Pic. 2 For his reprisal, Jeff is this month focussing on the back spindles



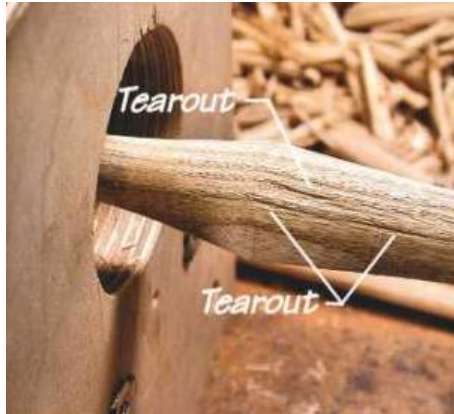
▲ Pic. 3 Jeff's 'turning engine' and the rotary planes used to rough out the spindles



▲ Pic. 4 The adjustable support is useful when working slender stuff



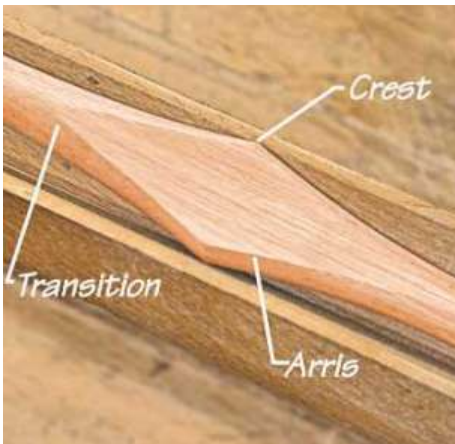
▲ Pic. 5 Jeff's rounded-sole trapping plane uses parts sawn from a metal spokeshave



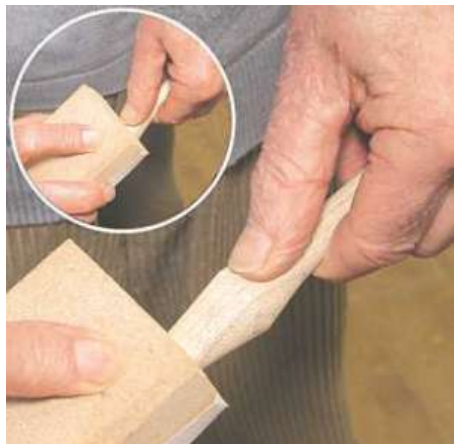
▲ Pic. 6 Jeff's plane, on this ash, did not give as good a finish as he would have liked



▲ Pic. 7 Using the V-cradle and a smoothing plane to create a decorative flat



▲ Pic. 8 Indicating the three areas that could be rounded by the sandpaper



▲ Pic. 9 Sanding to a stop prevented an over-run that would have softened the shape



▲ Pic. 10 Making final touches to the flat with a block plane

Jargon busting

Sandpaper: This has not been made for many years, but people still use this term for 'coated abrasive paper'

Steady: A device fixed to a lathe bed that rubs against the work to support long and slender workpieces

Finish: The result of completed process on the surface quality of an object; e.g. a rough or glossy finish

plane (Pic.5) that would let me make swankier back spindles than these modestly graceful spindles and arm supports. The successor is, of course, the chair whose technical challenges I've been focussing on in recent months (Pic.2).

A motorised turning engine

The workpiece is supported at only one end (Pic.3), thus avoiding the problems experienced on the wood lathe, but of course the free end is free to wobble. Providing that the rotation is sufficiently slow, this can be readily controlled by a two-handed grip on the rounder. With such tools the worker simply needs to gently apply a longitudinal pull but when attempting to taper or shape the work, some downwards (i.e. radial) pressure is needed, and this is where we see the reason for the design of the traps.

Essentially, the business part of a trapping plane is little different from an ordinary bench plane; indeed I imagine that some turners have successfully experimented with such planes on plain cylindrical surfaces. The trap differs in that it has a swinging arm that offers support on the underside of the job. Squeezing the parts brings the cutter firmly against the upper surface without applying any downwards force that could pull the work out of the chuck.

The late Fred Lambert, the designer of metal rounders, and from whom I eventually learnt a great deal, used what he called 'a turning engine' based on an electric motor and reduced the speed with a small car gearbox. My device (Pic.3) was assembled from parts of a salvaged (now-obsolete) 10in 'Denford Horizontal Sharpedge Grinder'. The reversible motor drives a reduction gear whose output shaft is fitted with a workshop-made collet chuck. Unfortunately the speed (280rpm) is not variable

Though it is possible to use the traps without support, an adjustable V-cradle (Pic.4) offers some support and a certain rough but helpful alignment.

Completing the spindles

Now I fear that, even after trying two prototypes, I have to report some

disappointment with the quality of finish obtained directly from my traps. At least with the ash samples I used, the tear-out all too visible in Pic.6 has sometimes been very difficult to avoid, and the vibration and noise from the tool have been less than pleasant. Since the speed of my turning gear can't be increased, I can't report that a faster speed might have improved the results.

Now I assure you that the flattening of one face of the spindle was from the beginning an intentional design feature (Pic.9) and not just a way of removing the embarrassing tear-out (Pic.6) but you can readily guess which area I decided to plane! (Pic.7). Because of the indifferent finish, I had to smooth the surface with sandpaper on a cork block, using the end of my thumb as a stop (Pic.9) to avoid rounding the crest (Pic.8). I found that sharp definition of the arrises and the transition zones was vulnerable to the slightest slip of the sandpaper, but finishing with a few strokes of a very fine-set block plane (Pic.10) easily restored their clarity.

Information

Metal rounders and traps:
www.ashemcrafts.com

WIN!

Competition

Tool chest, tools *and* a course with David Savage

Worth over £3000



Could you be classed as Britain's most deserving young woodworker? If so this is your last chance to win an amazing tool chest, a full set of hand tools and a week's Basics Course at Rowden



This month we show you the making of the veneered panel that embellishes the Chris Schwarz tool chest that is part of the magnificent prize, worth £3000. The process takes place during Week 2 of the Rowden Summer School. The previous week will have seen the US team make the chest in five days flat, with two drawers or 'tills'. The second week is in the hands of the Brits who teach the inside veneer decoration.

David Savage explains: "We have a week, well five days and maybe the weekend to catch up, to show you veneering in its two technical forms, wet and dry. Daren is the master of dry layups – the image here is of him assembling veneers that will be jointed and taped together. Then they will be put in a press with a hard panel. Wet veneering is what I do. I am not a master, I do not do it often enough, but I was taught by a master and I think it is important to keep this wonderful way of working with veneer alive. Daren hates hot glue – he says it smells of death. But even he is going to do a hot wet lay up with me.

"The project for the week is a panel that sits inside the lid of the tool box made in Week 1, and there are two panels that sit on top of the drawers or tills to keep dust and shavings out of your tools. Tool chests were always painted a dull grey on the outside, but inside they were like the sunshine as you opened the lid. This was a practical form of decoration as it was a display of skill that would help you get a job. Your tool box went on a wheelbarrow from shop to shop, the dialogue going like this, 'Gi us job.' 'Open lid lad.' 'Aye, that will do, start tomorrow'."

HOW TO ENTER

Entrants must be under 25 years by the competition closure date of 18 November 2015. All you have to do is write up to 250 words setting out why you would benefit from the prize, including a note of any prior experience. David is looking for someone with a passion for making. You or someone applying on your behalf will need to show that passion with photos and drawings. The aim is to put this box of tools in the hands of someone who needs them and will use them with care and pride. The winner will be chosen jointly by David Savage and by the Editor of *Good Woodworking*.

Tool chest competition GW0815

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The person judged most to benefit from the prize will receive the tool chest, toolbox and course

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Only one entry per person; multiple entries will be discarded. Employees of MyTimeMedia Ltd and David Savage are not eligible to enter this competition.

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Knuckle under!

Last month **Michael Huntley** looked at the rule joint used in making hinged flaps. This month he considers how the flaps are kept up

Flaps are traditionally kept up with a **knuckle joint**. Making this joint is an interesting exercise in cutting that helps develop confidence for the apprentice. The application of the joint can be seen in **Pic.1**. This example is found on a Georgian piece of furniture and has a nice S-shaped cutout to allow finger access to pull open the arm. The same joint can be used for gate-leg tables, and in the long run is more robust and easier to repair than a metal fitting. Because of its multiple bearing surfaces, the knuckle joint gives much more support than a standard metal hinge of the same size. Well-made wooden joints will help sell your work; metal ones probably won't!



▲ Pic.1 Knuckle joint on a Georgian drop-flap table



▲ Pic.2 The circle marked out



▲ Pic.3 Cutting the V-groove

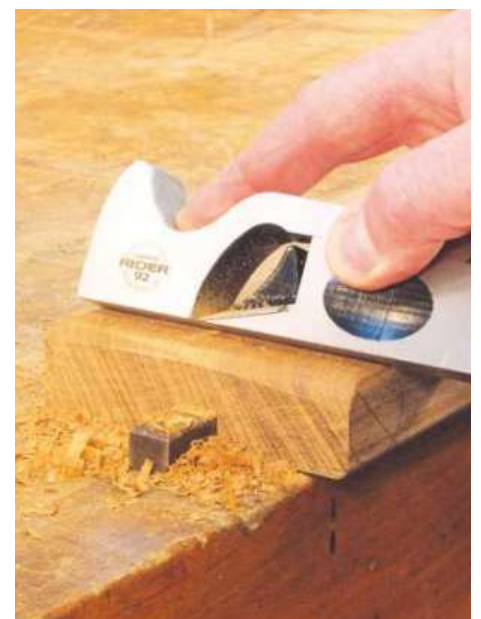
Joint considerations

Select your timber to be the same height as the rails of the table under-frame; thickness varies between 22mm for light tables to 30mm for heavy tables. As there is a lot of pressure on the joint use a hardwood – I am using a piece of teak recycled from an old '70s settee! In truth, this is a little bit too hard for this exercise, but I do like my recycled timbers for these one-off exercises. Save your expensive timber for proper projects.

When making the cutting list for your table allow for an extra rail on each side of the frame that has a drop flap. The knuckle itself is not put in the centre of the leaf. In order to give best support, arrange it so that the swinging part of the arm is under the centre of gravity of the leaf. There are obvious issues relating to the size of the leaf and the size and indeed the number of, knuckle-jointed swinging arms. Large dining tables will need two knuckle joints to each leaf. This is where a mock-up is needed to check the balance points of the table leaves.



▲ Pic.4 Planing the outside of the knuckle using the new Rider series No.5



▲ Pic.5 Forming the 'round' with a No.92 shoulder plane



▲ Pic.6 Cleaning up the shoulder with a standard chisel



▲ Pic.7 Dividing the knuckle into five fingers



▲ Pic.8 Offer up both arms to check exactly which side of the line you want the saw cut to go



▲ Pic.9 Saw carefully to aim for a close fit

Sawing the V-groove

Once you have decided on the length of the fixed and swinging arms, cut to size and lay out a circle on the top and bottom edges (Pic.2). Draw in two diameter lines from the corner of the timber, extending these beyond

the circle (Pic.3). Saw a 45° bevelled shoulder line back to the edge of the circle and then cut the other side of the V-groove tangential to the circle as in Pic.3. These angled cuts require you to be aware of how the 'set' of the teeth is behaving. If the saw 'catches' you have changed the angle inadvertently and the set on one or the other side has caught in the kerf. Relax and let the saw work evenly in the kerf. This is a great deal easier with a pull saw. Most people are far too rough with their sawing. A sharp saw is a precision tool; practise getting free-hand angled cuts right and you will know what I mean.



▲ Pic.10 Severing the top knuckle

Forming cylinders

Round the outer edges with a bench plane (Pic.4). I am using the new Axminster No.5 which is a good budget plane for the student. Clean up the V-grooves with a shoulder plane (Pic.5). Don't forget to come in from each side to avoid breakout. The long sole of the No.92 helps to register the plane horizontally on the small surface area of the knuckles. All this cross-grain planing may cause annoying squeaks, so don't forget to ease matters by rubbing an old candle on the sole of the plane. In fact, the only time that you don't lubricate the sole of a plane is when you are preparing a surface ready for gluing! Ragged bits can be cleaned up with a chisel (Pic.6). The same procedure is repeated on the swinging arm.

Then the arms are divided into five equal parts (Pic.7). The ruler is set such that five divisions span the width of the timber. A line is then drawn at each division, one at 11, one at 12, one at 13 and so on.

The knuckles are divided up into 'fingers' and 'gaps'. Sawing the gaps must be done carefully, in the waste, to ensure a tight fit between the fingers. The fixed piece should have a finger at



▲ Pic.11 Severing the middle knuckle



▲ Pic.12 Initial cleaning out of the hollows



▲ Pic.13 Final cleaning of the hollows



▲ Pic.14 Setup for drilling for the pin

both the top and the bottom. When marking the lines to cut, mark them in pairs – i.e. do not alter the gauge until you have marked the same line on both fixed and swinging arms.

Then re-set the gauge and move to the next knuckle line. Another tip is to clearly mark which is knuckle 1 and which is knuckle 5; that way there is no chance of you accidentally trying to fit no.1 to no.5!

Before sawing hold the two arms together to double check where to saw (**Pic.8**). You are aiming for a hair's width gap as the parts are fitted together.

Saw carefully, checking frequently (**Pic.9**), then cut off the spare ends (**Pic.10**). Cut out the middle gaps with a coping or similar saw (**Pic.11**). The interior hollows need to be cleaned up (**Pics.12 & 13**) with a variety of gouges, laid out in **Pic.15**.

Centre pin

Once the knuckles are cut and fitted the whole assembly can be drilled for the centre pin (**Pic.14**). Notice the scrap-wood 'splints' holding everything in place. You need to check everything for square and true because even the long-series drills may not go all the way

through from one side. The usual practice is to use a 4in wire nail but you can use any suitable round bar. I cut the heads off and the nail is held in place by friction. You could if you like just burr it over a tad.

This joint is a good exercise in accurate cutting and shaping (**Pic.15**). It really represents the end of a 'foundation' level or the start of an 'intermediate' technique level in woodworking.

NEXT MONTH

The one thing we haven't looked at in detail in this series is materials. We have worked on a lot of projects but haven't applied any polish to them, so next month I will discuss the main finishes available and the reasons for choosing a particular finishing system.



▲ Pic.15 The completed joint, showing the gouges used



Write on!

David Long's oak writing desk will not only take weeks to make, but it requires great skill and mastery of techniques



▲ Pic.1 Make a full-size drawing of the outer frame so that you can lay out the components, especially the angled joints for the flap



▲ Pic.2 It's a good idea to make a template for setting up the sawtable when it comes to cutting the angles for the flap

This desk was built for my mother-in-law as a result of my wife wanting the old family roll-top desk. It had to be no more than 850mm wide, 1200mm tall and 450mm deep, with no cupboards, but drawer sets on either side of a central gap and two drawers on either side in the insert.

My usual design process is to take existing drawings and articles and meld the ideas from various sources to form a unique piece. In this case the main inspiration came from Bill Newton's writing bureau (GW101:4), particularly the automated loper mechanics and the use of sycamore with ebony banding in the insert. Once the key design elements were agreed I produced plan drawings on my computer in TurboCAD (see p40).

Getting the correct proportions while keeping to size meant that no drawer could take a normal A4 folder so the two bottom drawer fronts on the right-hand side are in fact a single drawer. I also added integral roller wheels in the plinth to make it easier to move.

This project is not for the beginner. It will take over 250 hours to complete and cost approximately £300, plus £150 or so for the

Not so clever...

Before assembling the deskflap, fit the lock into the top rail (M). Ensure that when fitted, the key is central. This usually means the lock itself is fitted off-centre. Always check where the keyhole is in relation to the lock body, and then fit the lock body so that the hole is where you want it to be viewed. David didn't do that, and didn't notice the hole was off-centre till too late. The flap hinge recesses in the lower rail can also be cut before assembly.

fittings. But in my opinion there is no point in investing so much time only to skimp on the materials.

The bureau is in English oak stained with Rustins English Light Oak spirit stain (Rustins 020 8450 4666, www.rustins.co.uk) to complement existing furniture. I used Titebond Original glue for the main assembly. It's a personal preference of mine because it gives one sufficient time to position and clamp, yet truly sticks! The mouldings were applied using high-tack Titebond moulding glue. After staining I finished with three coats of Liberon finishing oil and then applied two coats Black Bison neutral wax. These finishes are all widely available from woodworking suppliers.

The insert is in English sycamore to give contrast, sanded to 600grit and protected with two coats of cellulose sanding sealer, again finishing with Black Bison wax. In addition to the main timbers, ebony is used for the insert knobs and (optionally) on the lopers. To keep costs down, all the main timber was bought part air-dried from the annual wood sale at Ickworth House in Suffolk (01284 735961).

Preparations

Start by drawing a full-size plan of the outer frame, inner frame and front view. The outer frames are exactly what you might imagine, while the inner frames are those that create the knee cavity. The inner frames are smaller than the outer frames, which comprise the angled stiles (B) that frame the desk flap.

Dimension all components close to finished size. Keep them in stick indoors and bring them to finished size as they are required. For lightness and stability I used double-sided oak-faced ply in the frames and desk flap.

To keep the character of the timber, I made my own, taking a 6mm ply core and adding 3mm facings, deep-sawn from the same source of 125mm wide oak source (the 2.9ft³ excludes this timber).

Making frames and flap

The outer frames and deskflap are constructed using similar techniques and tools settings



▲ Pic.3 Routing grooves in the rails for the side panels

The most critical joint in the outer frame is the three-way front angled joints where a tenon on the middle rail (E), fits into mortises on the front stiles (A&B).

The key angles are 28° and 14°. The angled stile at the front (B) has a 28° angle at the top and 14° at the bottom. Make an angled MDF template from the plan and use this to align the saw carriage (note that because of the geometry of a sawtable, the included angles of the template will be 90° - 14° or 28°). Use scrap wood to confirm the angle and length because minor errors will show.

I would use a router table to produce the 6mm groove in the inside edge of each frame and flap piece to a depth of 8mm. Practise on scrap material to ensure the groove edge is exactly the ply thickness from the back of the frame. Cut the 6mm-thick tenons and corresponding mortises in each piece. With the angled middle rail, cut the angled joint first then adapt the length of the rear tenon to suit the remaining timber.

Using a router table, produce a centralised dovetail socket in the outer frame middle rail (E). This will be handed, with the groove on the inside face. Without moving the cutter height, make a corresponding dovetail in the desk shelf side pieces (U). Using scrap test timber, adjust the fence so the dovetail is centred and a firm fit. When the main frame is assembled, the

The big project



▲ Pic.4 The three-way joint has to be accurately cut for strength



▲ Pic.5 Some of the rails are complex routing operations, with tenons at the end. This is the outer frame middle rail (E)



▲ Pic.6 The plinth is a simple construction, but the wheels make the bureau easier to move



▲ Pic.7 Using a trammel to rout the curve on the middle rail (M)

bottom of the shelf side piece (U) must be at the same height as the top of the inner frame.

Dry-assemble all four frames (inner and outer) and deskflap and confirm absolute 90° accuracy. Transfer the exact visible panel dimensions to the double-sided oak ply, add 8mm all round, cut to this size and rout an 8mm deep, 6mm thick tenon, ensuring that the rebate is on the non-face side. Remember that the panels (H) for the top of the outer frame are handed. The finished panel should sit flush with the inner faces of the frame as the drawer sides (B1, C1, D1 & E1) will run against these. Glue and assemble the four frames and flap.

Routing for the drawers

Allow a day for the inner/outer frames to fully cure, then clearly mark the inside face of each.



▲ Pic.8 Make a jig for cutting the housings in the sides for the drawer runners/kickers

Make a jig for your router that is a tight fit across the frame. This is to cut the housings and mortises for the drawer runners and drawer rails. Effectively this is a bridge, with side pieces that run tight against the edges of the frames. Using the jig and a 16mm cutter, rout the 3mm deep stopped grooves for the drawer runners. Using the same jig position, rotate the depth stop to plunge the front and rear tenons to 12mm deep. For convenience, allow the 3mm groove to run into the mortice area.

If you are combining two drawer fronts to create a single deeper drawer, as I did, only cut the relevant grooves. For frame symmetry I kept the lowest drawer rail and runner at 18mm because they looked too thin otherwise. This will need the jig moving or setting up an 18mm cutter. Do not cut tenons in the lowest rail position as these have dovetails.

Use the same router jig to cut the 3mm rebate for the outer frame top drawer kicker/loper runner. This does not go the full width of the frame even though the photos show this. The loper mechanism needs space at the rear.

Rout a 12 × 12mm rebate in the rear of the outer frames to take the back panel (V). Cut the mortises in each outer frame for the front rail (M) and rear rails (O). Rebate the inner frames to accommodate the front and rear centre rails (O). Add an oak moulding to the inside edge of all frame and desk flap components. Produce your own design from 6 × 10mm strips, using

available cutters then apply with fast tack moulding glue.

To further lighten the look of the frames and deskflap, rout a small pattern on the outside edge – I used an Axcaliber Classical Panel cutter with a 3/4in shank (666032). This cutter is also used to rout the profile on the loper cap and insert pillars.

Making the desk shelf

The desk shelf is the main flat surface that the insert will rest on. Biscuit the dovetailed side pieces (U) and the shelf front rail (T) to the main fill (S) to produce the desk shelf and cut in the flap hinges. The photos show brass table hinges that give a flush desk shelf surface (unlike other hinge designs the pin pivot is on the opposite side to the countersinks).

This hinge created an unexpected problem in that the original 'traditional' pivot point caused the desk flap to bind. To overcome this, the full pivot of the hinge needed to be proud of the shelf front piece (rather than half/half). Cut out the loper mechanism slots in each side of the desk shelf. Remove the rear 120 × 20mm (measured from the visible shelf, not from the dovetail).

The drawer runners

The drawer runners, are recessed into the frames. To ensure a good fit, rout a 16mm groove in scrap oak using the same cutter

used to create the recess. Thickness the runner components to be a firm fit in this groove.

Front and rear components have a shouldered tenon that ensures the inner/outer frames are correctly spaced. These tenons are 12mm deep at the outer edge and 9mm at the inner edge (due to the runners being rebated into the frames by 3mm).

The lowest runners are dovetailed into the frames rather than tenoned (out of a sense of tradition rather than necessity with modern glues). Drill and countersink the bottom runner assembly to allow the plinth to be fitted.

Front centre rail

The lower part of the front centre rail (M) is tenoned into each outer frame; the upper part at each end is cut away to provide the gap for the loper to run in. The arch in the centre of the rail is cut using a router and home-made trammel jig. For best results ensure the trammel pivot point has minimal play and is also raised by the thickness of the rail. I cut this first while the timber was overlength, to ensure that it ended up central. Use your jig to cut a 225mm radius arch 238mm across.

This results in the correct 'depth' of curve at the high point. The pivot point radius will depend on the cutter diameter used. Without moving the rail, change the cutter for a small cove cutter (4 or 6mm) and move the pivot radius such that the cove centre is 18mm above the arch. Carefully rout a cove around the arch and then (using a router fence) along the rail, stopping short of the tenons.

The top rails and top

Cut dovetails in the top front/rear rails (N&O), and corresponding stopped joints in the outer frames. The front edge of the front upper rail is sloped on the circular saw (use the MDF angle jig). Cut 1mm proud and plane to fit once

Tip

Using TurboCAD

Like any computer-aided design program, when you start using TurboCAD, nothing is easy. Here's some top tips from David.

- Start with something simple. Create a 8x4in rectangle in units, and then lay out a simple carcass construction. Just doing this will help you understand the tool.
- Use the help menu: it is good.
- Learn to use the construction lines tool.
- Remember the 'undo' command!
- The zoom works when you are in a task, so you can start drawing a line at full view and then zoom in to select the end point.
- Use the measuring icon to put values on the diagram.
- Once you've clicked a start point you can manually enter length, angle and so on. So work in full scale and let the program scale to print.

For beginners

It can be daunting to be faced with 12ft, variable-width boards. Who knows how many you need? I translate any cutting list into a timber length most efficient for the project. In this case I used 900mm with a few at 1200mm. Work out the total width needed to get all the components and then divide this into 125mm wide planks. It's lot easier in a timberyard to know you need to get 29 such planks of oak as these can be visualised. Also, a 900x125x25mm plank (approximately 36x5x1in) is close to 0.15ft³. So 29 planks is 2.9ft³ of oak.

As a check, the cutting list finished dimensions gives 1.7ft³ of oak. Allowing 40% wastage on thickness (25mm down to 18mm finished), 20% width wastage due to circular saw and planing and 10% extra because you will make mistakes, gives a massive 70% uplift, ending up as 2.9ft³. Using the same principles for the sycamore gives 1ft³.



▲ Pic.9 The left-hand outer and inner frames assembled with as many cramps as you own!

assembled. Dry-assemble the top rails to the outer frame and determine the joint positions for the side rail components. Drill and countersink screw holes in the top rails for later fixing the top.

The top (R) is edge profiled. The only 'fixed' element of this is that the front edge must have a 19mm flat face that, when assembled, is at 90° to the front slope. The deskflap closes to this and the flap lock engages in a suitable recess. It is easiest to plane this 'non standard' 62° angle by hand then use a router to apply a radius to the outer edge.

Assembling the carcass

Before assembling the carcass, make the loper mechanics. These can then be positioned and the fitting positions pilot drilled in the outer frames. This is easier to achieve before final carcass assembly. Use the ply panel offcuts to ensure that the screws used do not penetrate the 12mm! The mechanics cannot be permanently fitted at this point.

Glue and assemble each inner/outer frame pair with associated drawer runner/kickers ensuring no twist. Once fully cured, glue the front and rear centre and top rails in place. Dry fit the desk shelf to assist in this assembly.

The outer frames include a loper runner/top drawer kicker (C). The cutting list shows the single component for this. Optionally, make this component with a 4mm thick strip of ebony at the top, glued only at the rear. Drill an 8mm hole suitable for a set screw through the oak such that it can apply pressure to the unglued portion of the ebony. This will allow fine adjustment of the loper slide to remove any slack. The set screw must be fully recessed to clear the top drawer frame.

Fit the desk shelf. Use screwed wood blocks to attach it to the inner and outer frames and the front rail.

The wheeled plinth

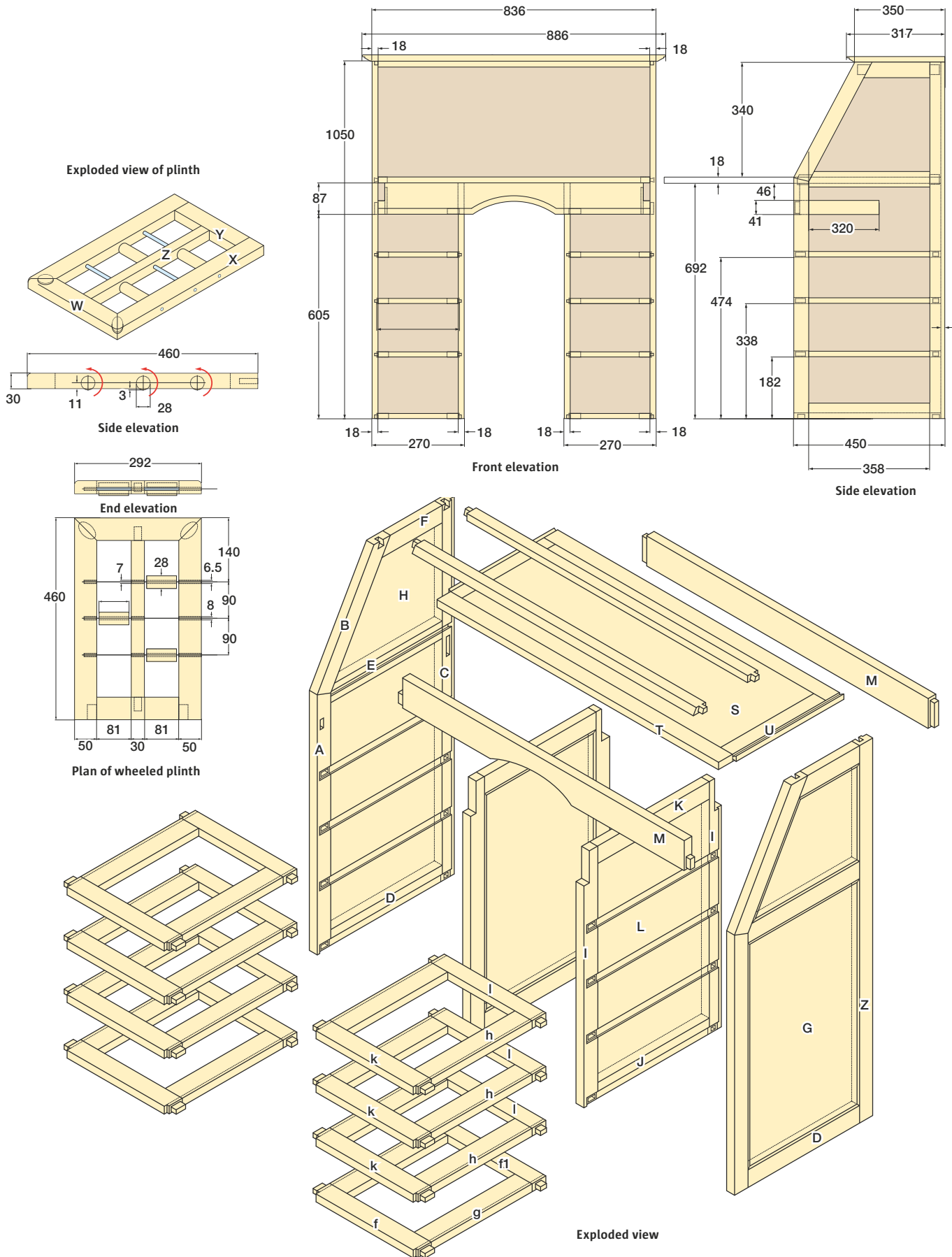
The plinth is a simple design, overhanging the front and sides by 10mm, rounded over. My mother-in-law wanted to be able to clean behind the bureau so I added wheels to the plinth. There are three on each side with a diameter such that they are 3mm proud of the base. The wheels (or rollers) were turned using a long-hole boring tool, turned to 28mm and parted off. This size worked well on my mother-in-law's tight-weave carpet but could be altered to suit any flooring.

The wheels called for a centre stile (Z) to support the axles, which in turn meant the axles had to be pre-assembled in this stile, with assembly holes drilled in the plinth sides (X). This was a requirement that only became



▲ Pic.10 With the flap in place the bureau is taking shape

Plans: How all the pieces fit together...





▲ Pic.11 The loper mechanism in its open position. Experiment with a mock-up made from offcuts until everything works correctly



▲ Pic 12 The loper mechanism in its closed position. There are several pivoting and fixed points for the brass components



▲ Pic 13 Fit the desk flap and check that the lopers extend and retract smoothly

obvious once the glue had been applied! The end of each axle is tapped for 6mm to allow a nut to be fitted just in case the wheels needed to be removed in the future. The axles are a drive fit into the outer stiles.

Drawers

Now on to the drawers. The outer side of each top drawer needs to be cut away at the rear to give the loper mechanism room to operate. The extents of this are a curve 120mm from the rear, and 50mm deep at the rear edge. To regain the usable drawer depth, box this in using offcuts (e.g. 20mm wide by internal drawer height) glued to the side and base. Thickness sufficient length of beading 5 × 10mm and produce a 2.5mm radius on one edge. I again used the Axcaliber Classical Panel cutter with ¼in shank (666032) for this and the smaller bead on the same cutter in the insert. Once each drawer is assembled, you need to rout a 5 × 7.5mm deep rebate around each edge of the drawer front (so that from the front the rebate appears 5mm wide) and mitre fit the beading.

Tip

Make a mock-up

The loper mechanism is very similar to that designed by Bill Newton (see GW101). Trial and error with a wooden mock-up gave the sizes shown that suited the smaller dimensions of this bureau. The lower pivot point design is modified to give four screw fixings, as the original with two small screws shows signs of movement after many test openings.

The loper mechanism

Please note that the brass letters in this section refer to brass components. Remember that the mechanism is handed and that some components (C & F) are similar. Double check during drilling and assembly!

All brass components are 3mm thick. Don't buy the thinner material from hobby shops as it will flex too much. The College Engineering Supply company (www.collegeengineering.co.uk) found on the internet offered excellent service, providing silver solder and flux as well as the brassware.

Once the components are cut to size, drill the pivot post point, pivot holes and fixing screw positions. Group the components into the left and right sets, then countersink the screw fixtures on the side away from the timber frame and countersink the pivot posts on the side facing the timber frame. The pivot holes are not countersunk. Both the pivot point and pivot hole are drilled with a 6mm drill (assuming 6mm not ¼in brass rod). The aim is for a tight fit. Depending on the size of threaded brass rod, a 7mm drill may be needed in K.

The pivot posts are made from 10mm lengths of brass rod. In scrap metal drill a 6mm diameter hole 9mm deep and countersink to the same amount as per the brass. It's advisable to drill through the scrap metal with a 3mm drill to aid removal of the pivots. Insert each pivot into the jig and gently peen the end to fill the countersink. Thoroughly clean the pivot and the host brass, apply silver solder flux, assemble and braze with silver solder. My attempts at using a butane/propane blowtorch were unreliable, so I bought a Benzomatic oxy/propane system from Halfords (£40) and goggles, along with some firebricks from the



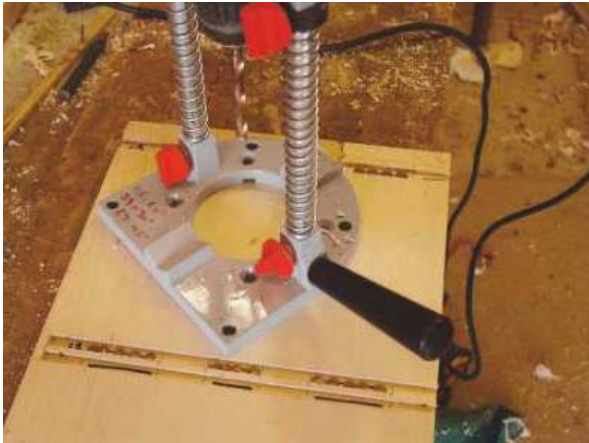
▲ Pic 14 Both lopers have a thin strip of oak along their top edge. There is a brass adjuster screw recessed underneath

local builders. Once cool, clean up with a file. Assemble in the following order (the first in each pair is the item with the pivot post): B to K, B to C, A to B, E to D, D to C, D to F. Wipe the pivot post with machine oil, apply a 6mm steel washer then the appropriate component, followed by a further washer. Use a file or belt sander to reduce the pivot post height such that 1.5mm is remaining above the second washer. Swage this over to complete the joint, stopping once all slack has been taken up. Do not overtighten or lock the joint. File a flat on 50mm of the threaded rod (I). Attach to the deskflap pivot (J) using two 2.5mm brass rivets, then braze. Tap G and J for 6mm thread.

Making the loper

Cut the loper to size. Optionally this can include a thin edging of ebony to provide a smoother bearing surface than the oak. Fix brass (G) to the rear of the loper using modern end-grain screws into pilot holes. Each loper is capped by a decorative piece of oak. This is wider than the loper in order to cover any gap in the front rail;

The big project



▲ Pic.15 You can use a drill and pillar attachment to mortise the insert section



▲ Pic.16 The sycamore carcass is decorated with ebony and sycamore banding



▲ Pic.17 The leather skiver makes for a wonderful writing surface

note that the top is flush with the loper top. These caps are small. Produce a single strip of timber thickened and to the correct width but over length. Using a router table, create the edge and end profile (using the same cutter as for frame detail). Cut the caps to length and by hand produce the one remaining edge profile. Rout a 6mm groove in the end of each loper, glue a 6mm tenon to the back of each cap and assemble. Fit the loper into the carcass and apply the retaining ply cover.

The deskflap pivot (J) is recessed into the deskflap such that the pivot point is 85mm from the base of the flap and 34mm from the outside edge. The brass base of J is between the edge and 34mm. The actuating arm (H) is attached to J with a 6mm round head bolt and washers (I ended up using brass enamel paint on steel bolts for these).

Once the carcass and deskshelf are assembled, the loper mechanism is then ready to be installed. Fit the deskflap to the carcass and attach H. Fit a 6mm nut to the full length of the threaded rod at the far end of the arm (L) and attach to the pivot point (K). You can then proceed to fit a further washer and nut. With the flap closed and the loper

fully in place, work from the rear of the unit to tighten the nuts against K for each side. Open the flap carefully and check that the lopers extend and retract correctly.

Next, a 9mm ply back (oak veneered by preference) is fitted in the rear rebate once the insert has been completed, installed and the loper mechanism adjusted.

For beginners

The final appearance of the piece can be enhanced or marred by handle positioning. After reading various books on this, it came down to double-sided tape and much trial and error, as a small change is significant. The final positions for the fixing points of the handles shown (Isaac Lord, Bentley 2.5in) are (from the top edge of each drawer, top to bottom drawer) 48mm, 48mm, 52mm and 56mm. As with any other project, try before you make the fixing holes.

If a double drawer is chosen, start by producing the drawer fronts individually, along with the false drawer rail. Use double-sided tape to fit the rail to the bottom edge of the top drawer. If you have access to a 600mm capacity dovetail jig, the bottom drawer can also be attached and the sides dovetailed as one. If the dovetail jig is only 300mm wide, produce sides that are deep enough for the top drawer and rail, and a separate one for the lower drawer. Remove the double-sided tape and rail, dry assemble the drawer sides into the drawer fronts and rout the 5x8mm rebate for the beading. Separate the components and glue the rail between the upper and lower drawer fronts. If the sides were made in two pieces, then glue these together before fitting to the combined drawer front assembly. Fit the beading, starting with the groove between the middle rail and drawer.

Sycamore Insert

The sycamore insert is fundamentally a mortise and tenon frame construction, with relatively thin components. The cutting list and construction drawing show the inner verticals (D) each being made of two 10mm components rather than one 20mm. This makes assembly easier, plus I had no 20mm sycamore available! All mortises and tenons are through, except for the lower joint in the centre divide (E).

The basic sycamore components are enhanced by the application of ebony/sycamore banding.

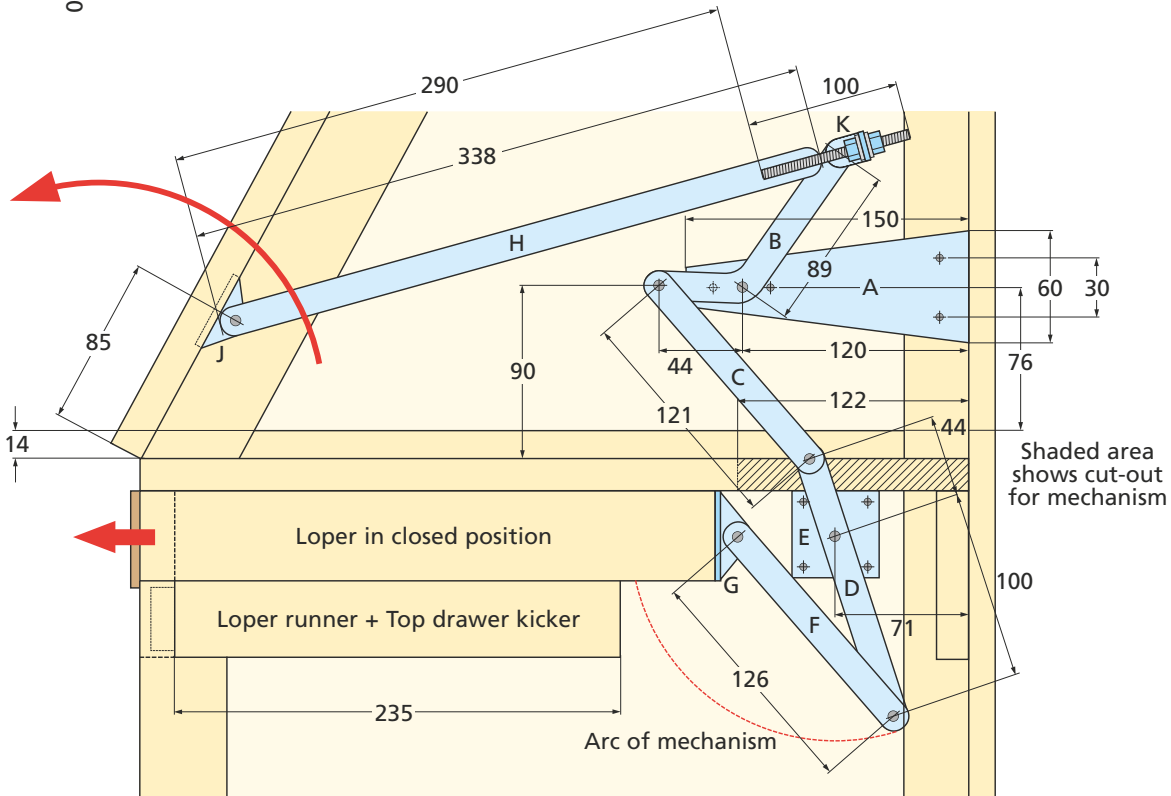
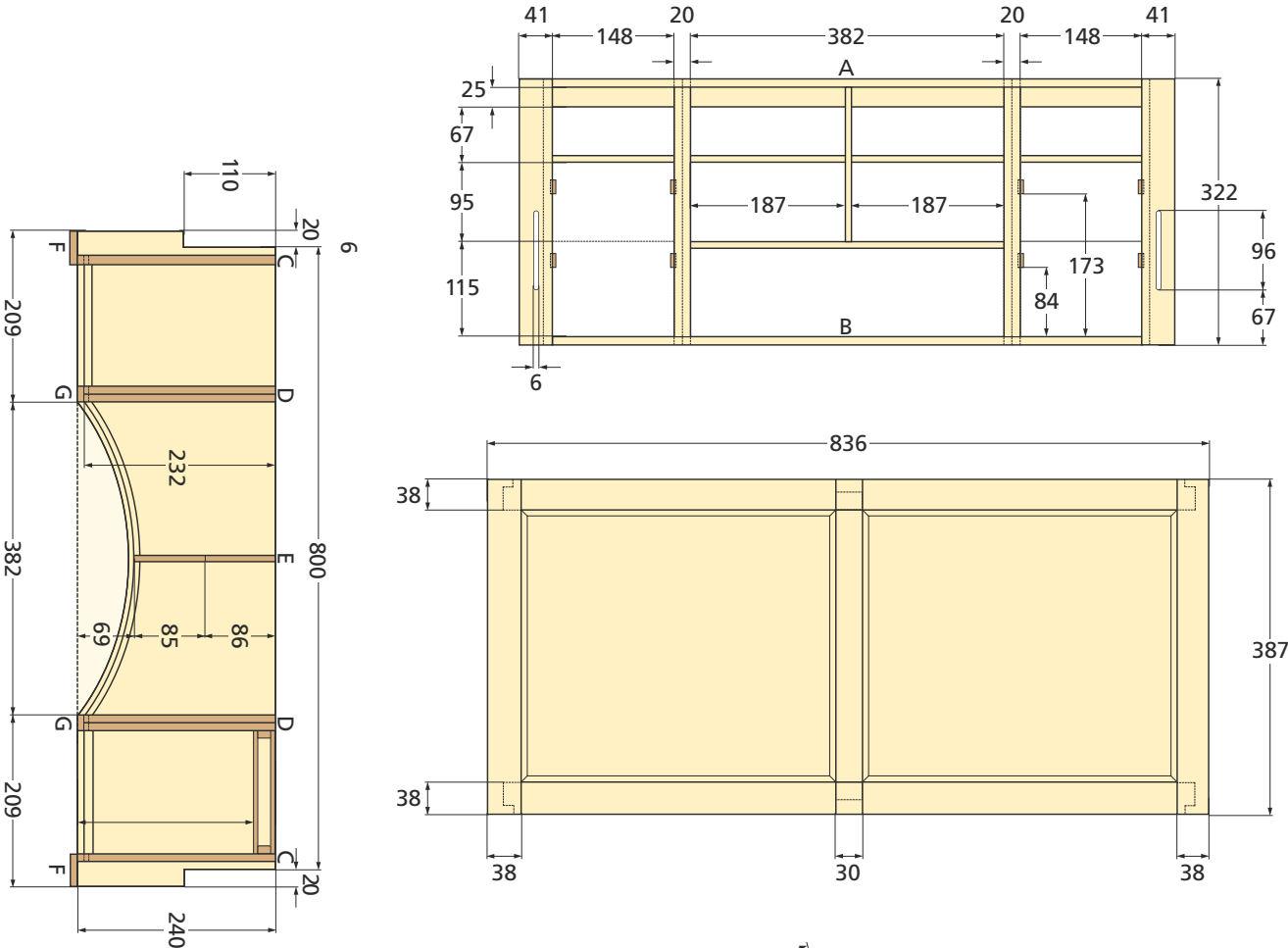
All drawer fronts and vertical posts are veneered in ripple sycamore. Sand all components to 600 grit and finish with two coats of sanding sealer and Bison neutral wax. The banding is sealed before sanding to prevent ebony ingress into the sycamore.

Building the insert

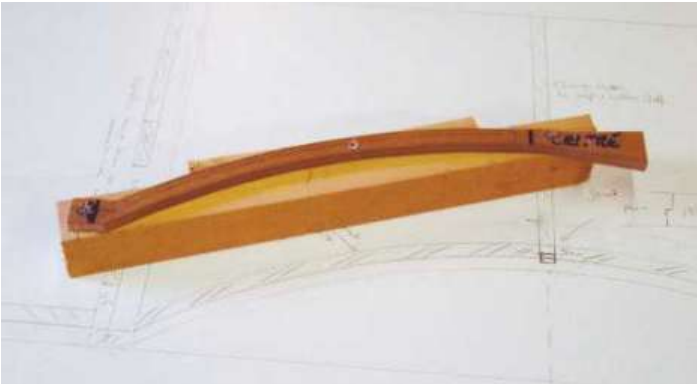
From the finished photos you'll see the outer vertical posts are in front of the top/bottom components, whereas the inner posts are captive within the top/bottom. As a result, the outer sides (C) are wider than the inner sides (D) by 8mm. Before jointing, check that the top, bottom and vertical components fit snugly into the carcass.

In scrap planed sycamore, rout 8 and 10mm grooves. Dimension all 8 and 10mm components to finished size so that they are

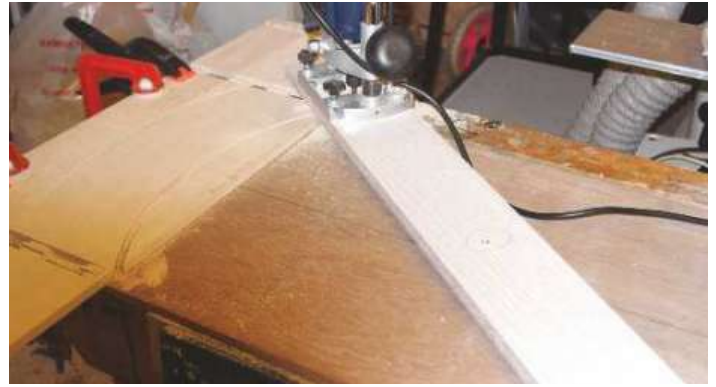
Plans: How all the pieces fit together...



The big project



▲ Pic 18 The curved inner components of the pelmet ready to be shaped using a template that matches the shape of the pigeon hole shelves...



▲ Pic 19 ...which are made by fabricating a simple circle-cutting jig for your router so that you can cut their curved fronts



▲ Pic 20 Runners, drawers and dividers: all the pieces of the bureau's pigeon holes laid out ready for assembly

a snug fit in the groove, as these cutters will be used to locate the joints.

On all tenon ends (that is C, D, E, H, I, J) mark the full thickness of the mating component, less 3 mm (7mm). Cut varying width tenons to this depth so that it will be impossible to assemble backwards. On the mating component, rout a 3mm deep groove, then transfer the tenon positions and drill and chop the mortises. Use a marker pen to be sure to cut only the waste! This groove will need to be stopped at the front for fitting the inner

vertical (D) but can continue through for the fitting of outer sides (C) and shelves (H,I,J). This technique takes a little longer but removes the risk of a tenon saw cut being seen.

The lower tenon of the centre vertical (E) is stopped into a full width 4mm deep groove in the lower shelf (I).

Bottom, lower and upper centre shelf components are all curved. Radius to 330mm, using the technique used for the carcass front rail. The top component is not curved, due to the need to sit flush against the carcass top rail.



▲ Pic 21 The drawer pulls are turned in ebony with a 10mm diameter and 12mm collar



▲ Pic 22 The secret drawer is retrieved using a magnet on a stick

Shelf curves have should now banding applied. Cut the 20 × 110 mm rear rebate at each side of the bottom component to accommodate the mechanism.

The centre vertical (E) to upper shelf (J) captive lap joint needs careful preparation as each component is only 8mm. Start by routing an 8mm wide groove 1.5mm deep on each face of each component at the joint position. In the vertical component (E) this is stopped 6mm from the front edge. Measure the remaining thickness of timber (5mm) and using a suitable cutter, remove the lap area in each. For the shelf this is the front 85mm after the curve has been cut – for the vertical it is the rear 86mm. Pare the first 6mm of the shelf groove to full width (to accept the full width of the vertical at this point). This joint is harder to describe than make, but does require accuracy and gives a crossover joint where each piece is constrained

How to add a secret drawer

Every self-respecting bureau has to have at least one secret drawer. If you'd like to give your drawer a little extra interest, however, try building a vertical secret drawer that sits behind both the right hand drawers (the cutting list shows shorter lengths to accommodate this). The front and back should be as thin as practical. I deep-sawed 6mm plywood and then shaped it to fit around the drawer runners.

A small metal fixing bracket was flattened and epoxy-glued into a recess in the front. This was then covered in oak veneer and stained and waxed to match the back. The front and back are joined by a 20mm frame to form an open box. The drawer can be pushed into position but only removed by the use of a magnet pen/pickup on the centre area, where the metal is located.





▲ Pic.23 Make sure that the jig is securely attached when routing the flap



▲ Pic.24 The lopers provide support for the writing flap

For beginners

The skiver is glued into the recess using diluted PVA glue; you'll find my tips for fitting the leather below. Otherwise, fitting instructions are available in Art Veneers' catalogue and online at www.artveneers.co.uk.

by the other for the full width. Practice on two pieces of 16mm scrap. Rout an initial 16mm groove 4mm deep, then cut out the centre with an 8mm groove (it's easier to see the principle on thicker stock).

Pelmet

The pelmet comprises four ripple sycamore veneered parts, all with a subtle profile on the lower edge. The outer two are simply rebated into the verticals, flush with the back of the inner posts and 8mm in from the outer posts. The inner pieces are curved to match that of the shelf (cut from solid timber), with an overlap tenon (the top half of one overlaps the bottom half of the other) at the centre into the centre vertical (E). Use a full-size setting out rod to find the exact length and angle of the joints.

The drawers operate on runners recessed into the inner and outer sides — 3mm rebated, 3mm proud. The fronts of these runners act as the drawer stops (on a tail in the drawer front). Therefore, for 13mm drawer fronts, these runners are 13mm from the front of the inner sides (D), and 21mm from the front of the outer sides (C) due to the different side widths.

Both inner and outer posts are veneered in ripple sycamore and the subtle edge profile is applied using the same cutter as for the carcass. The outer posts are longer than the inner

► Pic.25 Open for business: you could run the Onedin Line from here!



versions by 20mm. Cut a 6mm slot in each outer post for the loper mechanism actuating arm (H) — this is 70-160mm from the base, centred on 34mm from the outside edge.

Building the frame

Assembly of the main frame is best done in stages. First, assemble the centre vertical to upper shelf. Next create a sub-assembly with this, the lower shelf, inner sides and curved pelmet components. Create two separate sub-assemblies with the remaining (outward facing) inner sides, outer shelves, drawer runners, pelmet and outer sides. Glue all sub-assemblies to the top and bottom components and check that the assembly is square with a test fit into the carcass opening. You are then ready to glue on the inner and outer posts.

Insert drawers

Each drawer follows normal construction techniques — dovetailed front and rebated rear, with base inserted in grooves in the sides and front. The drawer fronts are veneered with ripple sycamore. Assemble each drawer and rout a 3 × 6.5mm rebate around the front edge so that when viewed from the front, it's 3mm wide. Now cut a 3 × 8mm sycamore strip, and either form a rounded edge by hand or use the same cutter as used the carcass drawers, but on the smaller 1.5mm radius. You can now fit this beading.

The drawer pulls are turned in ebony with a 10mm diameter, 10mm deep spigot, glued into

a central matching hole in each front. These pulls need to be small and simple to keep the balance of the insert. Turn a 14mm diameter ball with a 12mm collar that's 1mm deep.

Add the back panel

Finally stain, wax and fit an oak-veneered ply back panel. Don't extend beyond the outer side verticals, or to the full width of top and bottom. Otherwise the assembly will not go past the mechanism. Position the insert inside the carcass so that the top is just behind the front of the front top rail. If needed, the insert can be screwed to the desk shelf at the rear in the area hidden by the drawers.

Leather skiver

Once everything else is complete, remove the flap and cut the recess for the skiver. Select a suitable router cutter: bigger makes it quicker when cutting; smaller gives tighter corners and less hand finishing. Do the maths and make a suitably-sized jig to ensure there can be no slip of the router that would ruin the flap.

Measure the thickness of the skiver (in my case the hide was 1mm thick) and set the cutter depth to this. Centre the jig on the flap, double check the hold-downs and rout the recess. Square the corners with a chisel, taking care not to go deeper than needed. Refit the flap with a full complement of screws, stand back, admire, and then wonder what you're going to do with all that free time you suddenly have on your hands...

Tip

No-lather leathering

When fitting the skiver, remember two things. First, get the starting position correct as the glue grabs the leather immediately and lifting will stretch the leather. Second, when pressing the leather to the glue, try not to stretch it.



Sussex House

Spruce, western red cedar, engineered oak

“The brief was for a timber building that would sit well within the rural setting overlooking the South Downs in Sussex. 143 CLT panels form the entire superstructure, walls and roof, of the first floor. Mimicking the distant hills, the roof is designed to be an undulating surface, formed from a series of 28 triangular pieces. The roof and floors are entirely self-supporting. The CNC cutting technologies of the CLT production result in excellent dimensional stability; this has allowed for the panels to be shaped and the edges chamfered so they come together forming a continuous soffit with no visible joints. These spruce panels are also the finished surface of the interiors, giving a warm and tactile quality to the bedrooms and circulation

spaces. The use of CLT meant that this element of the design was built within 10 days. The stair from the basement to the first floor is clad with spruce to match the panels.

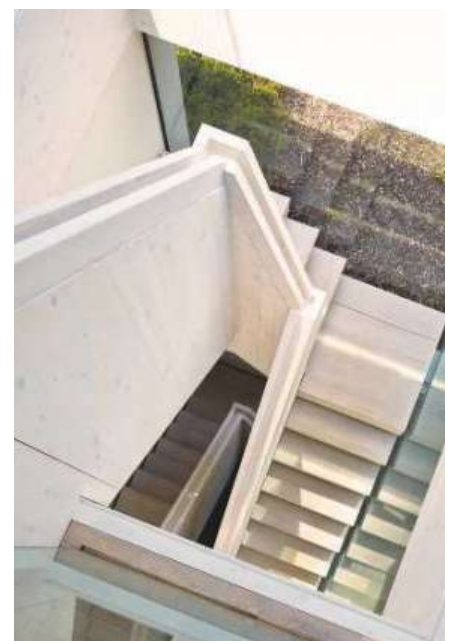
The entire first floor is clad using western red cedar. The untreated cedar ages over a short period of time to become silver, matching the bark on the trees surrounding the building. The timber is used as a rain screen with a waterproof layer behind it. The windows and louvred shutters are designed to slide behind the timber cladding. Inside, European oak flooring is used in the first floor circulation spaces and office. ”

Wilkinson King Architects



Wood Awards shortlist

Sussex House, designed by Wilkinson King Architects, is shortlisted in the Private category of this year's Wood Awards. With structural engineers Price & Myers and Packman Lucas, it was built by Westbridge Construction Ltd from timber supplied by Vincent Timber and CLT by KLH Ltd. Furniture shortlisted entries are showcased on the following pages.



Best of the best

Several furniture makers will be biting their fingernails down to the quick as they await November's Wood Awards results. Those featured on the following pages have all been shortlisted for what woodworkers regard as the crème de la crème of prizes.

Andrea Hargreaves reports

Raw-Edges not only made the furniture but used the same end-grain dyeing process to create a colourful wood-blocked floor at Chatsworth House





The blocks soak up the dye...

Called Endgrain and designed by Raw-Edges, these pieces entered in the Bespoke category showcase the possibilities provided by dying wood instead of painting it. From the most densely coloured areas, benches and stools emerge with their legs seemingly growing like tree trunks from a new indoor landscape.

...and are used to make shelving and furniture or are laid on floors



Dyed-in design

An example of this process is illustrated in the historic space of Chatsworth House in Derbyshire where Endgrain was fitted as a grid-like wooden floor creating coloured pathways.

Staining the wood all the way through leaves it consistently saturated, and when Endgrain gets dirty or fades in the sun, removing or sanding the layer will make it look new again. The idea for the timber soaking came from xylem, the water-conducting tissue that is found in trees and which facilitates the transportation of nourishment through the roots and into the remainder of the plant.

After graduating from the Royal College of Art in 2007, and after not finding 'proper' jobs, Yael

See for yourself at 100% Design

Some of the UK's best new furniture and product designs in wood have been revealed as the Wood Awards' shortlist is announced. Four bespoke designs, three production designs and three student designs have been selected by the judges led by Max Fraser, design curator and author. All of the shortlisted projects will be on display at 100% Design stand L722, 23-26 September at London Olympia. The winners will be revealed by host Tom Dyckhoff at the 44th annual Wood Awards ceremony at Carpenters' Hall on 10 November. The Wood Awards are the UK's premier competition for excellence in architecture and product design in the world's only naturally sustainable material. The Awards aim to recognise, encourage and promote outstanding design, craftsmanship and installation using wood.

Max Fraser comments: "It's exciting to be part of this important awards process and even more exciting to see the extremely high quality of work that comes through. The UK is producing great design in wood, and this year all the judges were especially delighted to view work from the new student category."

and Shay Alkalay set up a design studio in north London called Raw-Edges where their imaginations could take flight: furniture, installations, and products began to develop with a strong accent on playfulness.

To quote from their website at www.raw-edges.com: "The studio became a place where curiosity would be a prevalent factor in the creation of their designs, a place where they could embark on a continuous journey of discovery, turning the world upside down and inside out, cracking things open and studying their structure, always striving for surprise, wonder and humour. Colours, patternmaking and movement form a large part of the DNA at Raw-Edges. The ideas of energy and provocative illusion are aimed at bringing out the kid in all of us who engage with it, an ongoing battle

against boredom, perhaps! Some ideas include pouring expandable foam into folded paper cavities, cooking timber in boiling dyes, and making paper moulds for the production of industrial ceramic tiles."

Yael and Shay met in Jerusalem and moved to London to study at the RCA, where Ron Arad was head of the course at the time. Under the guidance of their tutors Daniel Charney and Rober Feo they began to experiment with creating new typologies, by thinking how everyday surroundings might be enriched by the products we use and the objects we own. In a show curated by Martino Gamper, held just after graduating, Yael and Shay presented Stack and Volume, which helped to establish the foundation of the studio. Since then they have created floors for Stella McCartney's fashion stores and done commissions for Louis Vuitton.

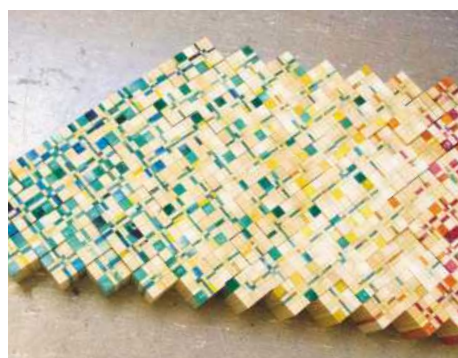
They like to work with jelutong and cypress veneer because these soak up the dye well, and with southern yellow pine for its grain, all supplied by Jennor Timber.



The colours are rich and long-lasting, and can be re-sanded as necessary...



...because the dye seeps right through the wood



How pretty is that?



The effects are stunning

Bespoke



David Gates' cabinets are both elegant and evident of great construction technique

From Greenwich to the Barrier and Perpetually Ajar: an unmatched pair of collecting cabinets, one with a multitude of drawers, a fall flap and vertical tambour, the other with a cedar-lined cupboard, small drawers, and a fall flap. The solidity of oak is supported on visually light maple leg frames. Maple also provides for bright white drawer interiors. Cedar is incorporated as a reminder that we encounter furniture with all of our senses.

Designer-maker: David Gates. **Wood species:** quartersawn European oak, brown oak, bog oak, American maple, cedar of Lebanon, Douglas fir.



Gareth Neal can always be relied on for work like no other

VE-SEL: Gareth Neal was invited to architect Zaha Hadid's office to work with her design team for The Wish List, using the company's modelling software to design VE-SEL. From this came the idea of extruding the form along one of its axes with a slit opening at the end. Neal was interested in the idiosyncrasies of traditional hand processes such as a hand-thrown pot or a raised piece of silverware, and how simulating these could be achieved through digital imitation. The vessels were made in two parts on a CNC machine during a week-long stay at Benchmark.

Designer: Gareth Neal.

Manufacturer: Benchmark Furniture.

Timber supplier: Lathams.

Wood species: American white oak.



Sebastian Cox designed a place for Sir Terence Conran to get away from it all

Getting away from it all: here wood is used to create a cocoon-like, private workspace designed specifically for Sir Terence Conran. The pieces are made from American red oak and cherry, chosen because they are little used, less popular woods. The design comprises a desk between two monolithic bookcases, enveloped within curved, woven screens. The screens are made entirely from red oak. The curved frames were steam-bent into arcs, the panels filled with woven, bandsawn strips of the oak, after time spent soaking in the River Kennett at the foot of Sir Terence's garden in order to make them supple. The bookcases and the desk are made entirely from cherry and feature sliding doors, dovetail joints, an entirely wooden tambour and a secret compartment. The suite was part of The Wish List, in which 10 top architects and designers were brought together by the American Hardwood Export Council and Benchmark Furniture to come up with their hearts' desire. The results were shown during the Design Festival, at the V&A.

Designer: Sebastian Cox. **Manufacturer:** Benchmark Furniture.

Timber supplier: Lathams, Taylor Hardwoods. **Wood species:** American cherry, American red oak.

Production made



Clean lines and beautiful figure distinguish these fine stools

Photography by Petr Krejci

A stool for the kitchen: the pair of kitchen stools is made from American cherry designed in collaboration with architect Alison Brooks. Brooks chose designer Felix de Pass to respond to her brief for a kitchen stool that was 'the right height for a kitchen counter and that is quiet, clever and beautiful' – a product she was unable to find for her own family home and also for specifying to clients in her architecture studio's residential projects. The core requirement of the stool is that it is usable from every angle and accommodates an everyday, dynamic perching and hop on/hop-off movement at about 650mm height. A central column and raised foot ring is used to free up as much space as possible under the seat, ensuring the user's legs and body are not interrupted. The turned wooden top that is slightly dished and has rounded edges enables comfort and invites the user. A second lower stool at 450mm high, for use at a table rather than kitchen worktops/island units, was also added to the collection.

Designer: Felix de Pass.

Manufacturer: Benchmark Furniture.

Wood supplier: Lathams.

Wood species: American cherry



Practicality and refinement combined in Catherine Aitken and David Murphy's table and stacking trestles

Aero Trestle Table: this stackable table was designed as part of a wider collection of furniture for the Edinburgh Sculpture Workshops and their new purpose-built facility in Newhaven, Edinburgh. The aim of this commission was to develop a collection of designs on site at ESW, which were capable of being produced in small quantities in the workshops themselves, before being put to use throughout the new ESW building. Local Scottish ash was used for the trestle legs, a material with an attractive and varied figure, yet pale in colour. A simple and economical plywood tabletop surface edged with the same solid ash lipping unifies the aesthetics of the piece while protecting vulnerable plywood edges from delaminating and splintering. Two narrow bands of rubber webbing set in the underside of the tabletop provide a safe, non-slip contact with the trestles themselves.



Designers: Catherine Aitken, David Murphy.

Manufacturer: Edinburgh Sculpture Workshops.

Wood supplier: Falkirk Wood, Lathams.

Wood species: solid Scottish ash, aero ply, birch plywood



Is this the future?
Brodie Neill's
chairs are shaped
rather than
jointed



Alpha chair: the Alpha chair is a solid wood all-purpose stackable chair produced using the latest production technologies of shaped wooden furniture. Through the Alpha chair, Brodie Neill explored the use of CNC technique as a high-production tool rather than a prototyping technology. Additionally, the design utilises digital sculpting, taking away the reliance on moulds. By adopting contemporary digital processes of design and manufacture, the Alpha chair takes on a smooth appearance in contrast to the more traditional joinery of chair design where each element is exposed.

Designer: Brodie Neill. **Manufacturer:** Made in Ratio. **Timber supplier:** various.

Wood species: solid ash, solid ebonised ash, solid walnut.

Student designer



Emma Leslie asks why your workshop shouldn't have an inspirational chair to relax in

Slatted chair: Handmade from sustainable hardwoods using traditional techniques such as bridle and tenon joints, this chair was inspired by the architectural forms of Alvar Aalto and designed to focus on structure. The designer's aim was to make a seat suspended inside a frame, similar to the inside/outside of a building. It has the feel of an armchair, but is light in its structure.

Designer-maker: Emma Leslie, Building Crafts College.

Wood species: maple, cherry.



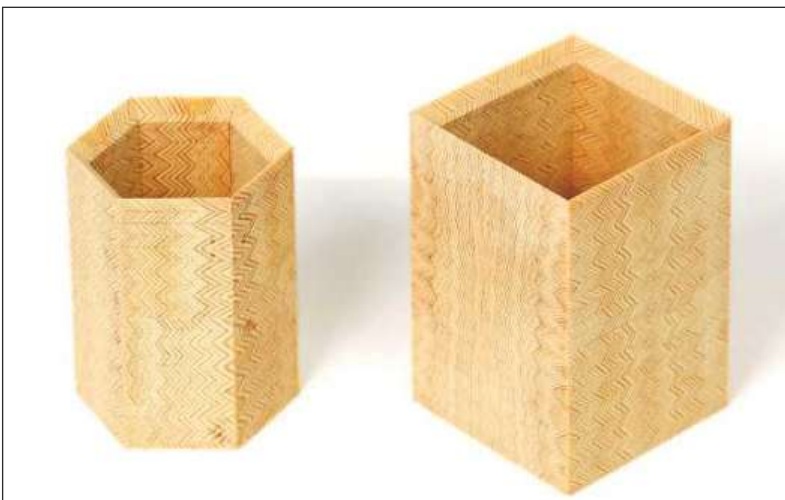
Torsten Sherwood's Throne and Pew stools have stackability

Throne Stool & Pew Stool: these were made as part of a design project that aspired to reinvent traditional timber details with the constraints of using conventional tools, techniques and materials. The stools are a reinterpretation of the archetypal finger joint but instead of two plains intersecting with fingered edges, one of the plains is made up of many intersecting batons creating a V-shaped seat. Even though the stools are light, they are immensely strong, taking advantage of the strength and flexibility of European beech. Inspired by Scandinavian heritage, the designer has soaped the wood to produce a natural finish that celebrates the raw qualities of the material.

Designer-maker: Torsten Sherwood, London Metropolitan University.

Timber supplier: Timber Cut 4 U.

Wood species: European beech.



A desk would be bare without these desirable accessories by Simin Qiu

End Grain stationery accessories: this collection was inspired by the wooden floor in the Barbican theatre, London. The surface pattern of the floor reflects the nature from which it was derived. Designer Simin Qiu's aim is to introduce this mix of nature and man-made beauty and apply it to functional, everyday products accessible to all.

Designer-maker: Simin Qiu, Royal College of Art. **Wood species:** pine.

People's choice

Within the Student category there is a People's Choice Award with a £500 cash prize. Voting will take place via Twitter using the name of the project and the hashtag #WASStudent15.

mafell

NEW cordless drills



A10M • A18M - Drill Drivers
ASB18M - Combi Drill with Hammer Action

A lot of punch in a small package – the clever functions make the new Mafell cordless drills versatile all-purpose machines for the internal finishing trade and other applications. Premium battery technology enables you to drill and drive for extremely long periods without interruption. A10M and A18M are Drill Drivers, whereas the ASB18M is a Combi Drill with Hammer Action.



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Router Table Module (Option)
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TWX7 CS001

Contractor Saw Module



Contractor Saw Module (Option)
Powerful and accurate table saw with full length fence

A close-up photograph of a person's hand resting on a piece of light-colored wood that is being cut on a Triton TWX7 Workcentre System table saw. The saw is a sliding table saw with a grey extruded aluminium body and orange accents. The background is a blurred workshop setting.

TWX7 Workcentre Systems

The TWX7 brings the precision and convenience of the legendary Triton Workcentre to a new generation. Constructed using lightweight yet robust extruded aluminium sections, which support innovative low-friction work surfaces, the TWX7 is the ideal solution for the woodworking enthusiast. In addition the all new TWX7 is now a highly capable and mobile multi-purpose workshop for professional site use.

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Ever ready battery

It was more than a year ago that Bosch got us terribly excited about electric toothbrush-style battery charging, and now it's here, initially used on a drill. **Mark Cass** powers up



The GSB 18Vli is a tried and tested combi drill, now enhanced with wireless charging technology

We're all familiar with this scenario: poised to drive home the key screw, or to drill an important hole, the cordless drill slows and stops. On a muttered curse, we down tools and toddle off to find a replacement battery and to put the flat one back on charge. Mildly irritating at

best, these are the times when you wish you were better prepared or at least, a bit luckier than present. Well, all that can now be a thing of the past, as wireless charging technology is poised to become widely available, courtesy of giant German manufacturer and innovator Robert Bosch.

Improvements

Since the advent of lithium ion technology, batteries can now be topped up at any point in the charge/discharge cycle, something that wasn't possible with the earliest NiCad (nickel cadmium) and NiMH (nickel metal hydride) types. As all of us woodworkers know, things have greatly improved in this field and we can now charge anytime – and for any length of time – without fear of harming the expensive cells within.

Following thousands of person hours of research – not to mention a stack of patent applications – Bosch has found a way of utilising induction technology to improve the battery charging systems which power our tools. Anyone who did the relevant science at school – physics class anybody? – may recall those experiments with magnetic flux patterns and the diagrams which resulted. They were usually created in iron filings by a current flowing in a conductor and nicely illustrated the fundamentals of electro magnetism.

Although the principles behind the technology are well known, and similar to those which govern electrical transformers and the domestic induction cooker hob, never before have they been harnessed to recharge an exhausted battery of any size. It's a big first step towards the ultimate cordless tool.

Space

The charging unit is the size of a regular charger, and so won't impinge on valuable bench space, especially with its low profile. In operation you have two choices: either put



▲ Batteries have a button-operated charge indicator



▲ The charger and battery with their distinctive markings. Note circular recess on charger



▲ A green light shows that the battery is in the charging zone, however haphazard its placement

Wirelessly charged Bosch 18V combi



▲ If the battery goes too far out of range the red warning light comes on



▲ The toughened docking frame both contains and protects the charger...



▲ ...as well as helping to ensure the battery is in its optimum charging position

The vehicle: Bosch 18V combi

Bosch has chosen – wisely in my opinion – to launch the wireless charging system with one of its most popular drills, the 18V combi. This top-quality tool features all of the most recent advances that have been made in this field. Thanks to strategic use of the now familiar rubberised plastic, it's a rugged cordless tool, well protected and entirely suited to a working environment. This firm but yielding outer layer also makes it very comfortable to hold.

Controls are exactly how one would expect; the now familiar cordless drill layout has settled into a default standard of sorts, and it would be a brave or foolish firm who would change it. A progressive trigger action, thumb-operated rotational control – with helpful arrow! – and a rear top-mounted speed switch make up the most important stuff.

The standard torque control ring is firmly present and correct, and joined by another which determines hammer action or not. Combi drills are much better in their percussive powers than they used to be, and the Bosch is no exception. Obviously though, they do have their limits, and if you're contemplating that reinforced concrete lintel, then you may want to think twice about it and maybe track down an SDS drill instead.

Like nearly every power tool these days, there is a super-bright LED work light on board, a useful work aid it has to be said, but I found that the positioning of this one meant temporary dazzlement when I changed between drill bits. Mind you, it's nothing that a piece of gaffer tape couldn't fix if it continued to be an irritant.

Conclusion

Overall, I found the Bosch GSB18V drill to be very user friendly, and it did all that I asked of it. It could be considered a slightly heavy drill – and has the potential to be heavier still if you go for a larger battery alternative – but this is partly due to the all-metal gears and top-quality 4-pole high-performance motor inside. If you feel the need for a smaller tool, then the 10.8V range will have something for you there, but not the wireless charging system just yet. I'm told it will be coming, but upgrading an entire range, while still keeping it backwards compatible with existing kit – something Bosch is very rightly proud of – is hardly the work of a moment.

a flat battery on charge as usual – it's just a 'place and go' – or you can stick with an ongoing intermittent charge by just putting your power tool straight down onto the charger. This is slightly recessed to ensure basic alignment, but don't worry though, you don't have to achieve perfect mathematical accuracy.

As long as the battery is in 'the zone', it doesn't matter which way it's aligned. I tried it in as many different ways as possible and discovered that it will cope with being slightly out of its recess; a red light will warn you of any positional errors you may have made.

The same red LED warning light will also point out the proximity of any foreign bodies, and also inform the user whether or not their battery has gone beyond its optimum working temperature.

Framed

Although the charger is happy enough just sitting on the benchtop, Bosch has included a tough ABS plastic docking frame in which to house it and help attain best alignment. This frame can also be fixed to the benchtop and thus assist in bringing order to the workplace.



▲ A super-bright LED worklight is set into the upper base

For the really go-ahead woodworker though, it's entirely possible to sink the charger into the benchtop and cover it with clear acrylic sheet to provide a flush and good-looking solution. This is something I've yet to do, but I can really see the attraction and usefulness of such a scheme.

The ^{Good} Woodworking Verdict

+ Great build quality; enhanced by wireless charging; fully compatible with all Bosch 18V batteries

– Slightly heavy; LED worklight position

Rating ★★★★★

Price: from £176.00

Voltage: 18V

Speed: 500-1700rpm

Chuck: 1.5-13mm

Max torque: 60

Weight: 1.6kg

Web: www.bosch-professional.com/gb/en

Knife work

Perfect dovetails require perfect marking out. Make **Dominic Collings'** knife and you'll be on the way

In this day and age, I'm certainly not the only amateur to have approached **woodwork the wrong way around.**

Most vocationally trained, professional woodworkers will have started their interest and careers by learning the basics with saw, mallet, chisels and very little else. As time goes by they will progress into relying more heavily on machinery to do the same tasks, but the traditional skills they learned first will still be there.

On the other hand, I plunged straight into the machinery side of things. I missed out on

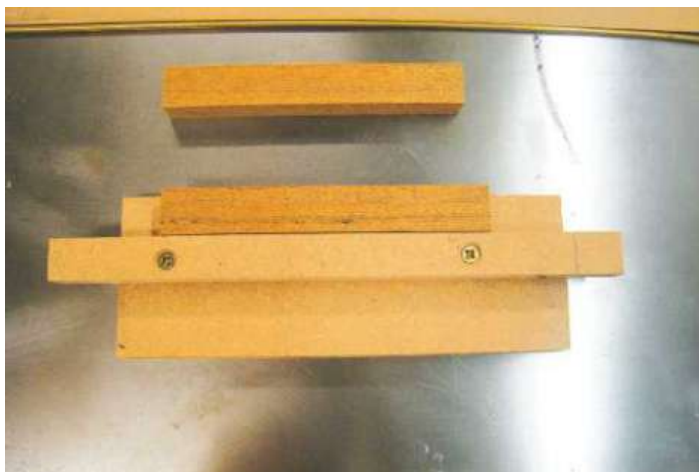
the learning of those basic skills; you might think that this wouldn't be a problem with the availability of reasonably priced machinery these days, but with machinery comes certain limitations. Most machine-made furniture has a very machine-made 'look' to it and; although up until now I've been fine with that, I find myself increasingly wishing I'd started with traditional woodwork first. That's why I learned more hand tool skills – and acquired some quality equipment while I was at it.



▲ Pic.1 Dominic used an offcut of iroko for the knife's handle and a brass rod he had from another project



▲ Pic.2 After planing the iroko down to the right thickness, he dimensioned the piece in half on the bandsaw



▲ Pic.3 Using this piece as a spacer, he made an MDF jig to hold all together while machining the metal



▲ Pic.4 With the metal and wood piece held together, he drilled holes for the brass rods



▲ Pic 5 Held together by rods, this was placed on the jig, and the metal was sanded back to the handles



▲ Pic 6 Dominic roughly cut the point at the end of the blade using a disc sander and mitre gauge



▲ Pic 7 He used a blow torch to heat and harden the steel of the blade, which was clamped in a vice



▲ Pic 8 The process left the metal black, which Dom rubbed off using a Hermes Webrax pad



▲ Pic 9 He ground an edge into the blade with a general mounting jig set at 25°...

One of the first things I want to tackle is cutting dovetails by hand to finally get rid of that annoying machine-cut look to projects. Inspired by Andy King's article on the subject (GW207), I listed all the tools I would need to do the job and asked various relatives to buy them for me for Christmas, with the exception of one thing. I had inadvertently ordered a right-handed marking knife because I'm right-handed, not realising that the handedness is to do with whether you are cutting up to the left-hand side or the right-hand side of an edge. To compound matters the one I bought was as blunt as a butter knife and the edge-holding qualities were very poor. All of this became apparent on Christmas Eve, by which time it was obviously too late to order another one. Luckily, there's a Cromwell Tools branch near to me where I thought I'd be able to find the necessary bits to make a better knife myself.

Preparing materials

I came back from Cromwell's with the only material they had in stock – a length of 1mm-thick, 25mm-wide gauge plate, or precision ground flat stock.

I had an offcut of iroko for the handle and I already had some brass rod from a previous project (Pic.1).

After picking up various tools and deciding on the length I thought I'd need, I arrived at



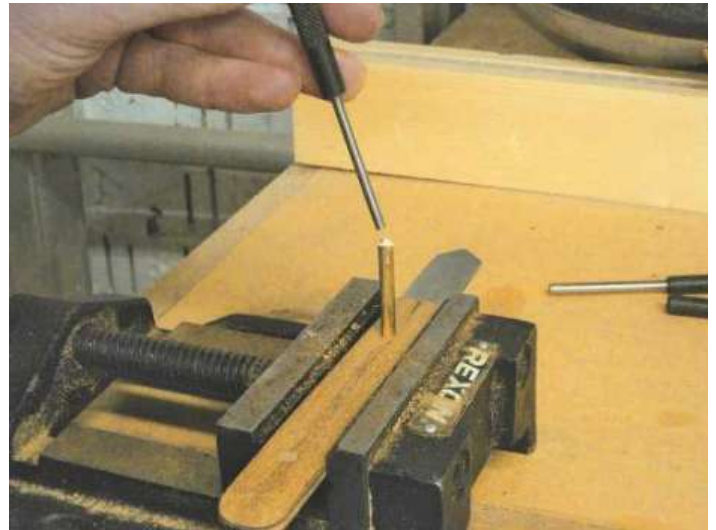
▲ Pic 10 ...and he used the side of the stone to initially polish the back of the blade

measurements of 140mm for the handle length and an extra 50mm for the blade length. The width of the blade would be a little wide for comfort if I left it at 25mm so I decided to machine the iroko first and then cut the metal back to match it.

After ripping and planing the iroko down to the correct thickness, I cut the dimensioned piece in half on the bandsaw (Pic.2). I used this piece as a spacer and made a quick MDF jig to hold all the pieces together while I machined the metal (Pic.3). The metal was



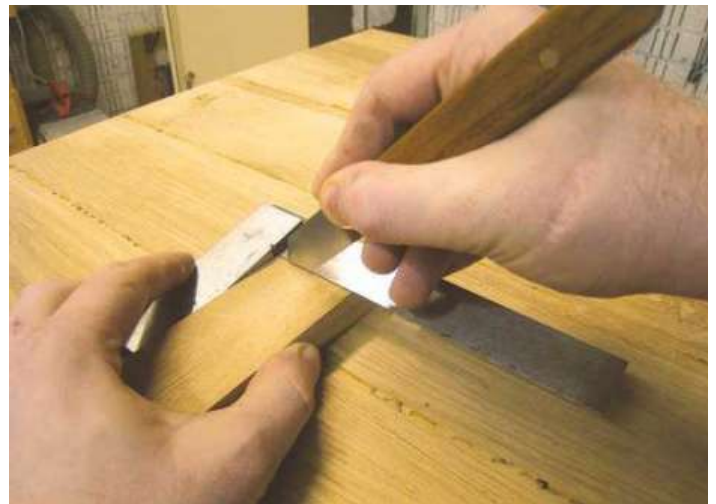
▲ Pic.11 He rounded over the edges of the two sides of the handle on a router table



▲ Pic.12 He drove the brass inserts into place; both ends were mushroomed over



▲ Pic.13 With the blade end clamped again in the vice, he applied a finish of Polyx Oil...



▲ Pic.14 ...and all that remained was to put the knife to work and see how it performed

cut roughly to length by hand with a hacksaw and with all three pieces held together I drilled holes all the way through for the brass rods (Pic.4). I needed to do this now before I hardened the metal. With the brass rods holding all three pieces in place on the jig I simply sanded the metal back to the handles (Pic.5). I never run my extractor when sanding metal in case a spark sets fire to sawdust in the bag.

Making a point

To roughly cut the point at the end of the blade I used my disc sander in conjunction with a mitre gauge set at an angle of slightly greater than 45°, which would help me get right into corners when in use (Pic.6).

Having disassembled the pieces, it was time to harden the steel. With the blade clamped in a vice with a bucket of hot water underneath, I heated the metal until it glowed cherry red (Pic.7). This photo is a little misleading as while it shows the correct colour I couldn't get enough heat into a large enough area so

in the end I had to use a larger blow torch borrowed from a friend. To help things along I held a heat-resistant brick behind to reflect the heat.

To harden the work properly the steel should be kept at cherry red for one hour

per inch of thickness, so in this case it was only for two and a half minutes. After heating I simply opened the vice, dropping the hot metal into the water to quench it. This process left the metal black and for the next step it's important to be able to see the colour of the metal so the black was rubbed

off using a Hermes Webrax pad (Pic.8).

Next was the tempering, which is exactly the same process as before except you only heat the steel until it turns the colour of straw; then you quench it again in hot water. Using my Tormek grinder, I ground in the edge with a general mounting jig setting it to 25° (Pic.9). I used the side of the stone to initially polish the back of the blade (Pic.10).

Finally, I rounded over the edges of the two sides of the handle on the router table (Pic.11). With a sporadic dab of epoxy on the handles I used a punch to mushroom over one end of two brass inserts. Once driven in place I cut the excess off, leaving them about a millimetre proud and once turned over, mushroomed over the other side (Pic.12). With the blade end clamped again in the vice, I applied a finish of Polyx Oil (Pic.13).

The last thing to do then was to try my knife out. Well, it sits comfortably in the hand and creates a nice, fine point, so I'm more than happy (Pic.14)!





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Fiddle makers of Rouen

If you can strum or bow it, then French violin makers can probably fix it, as **Barrie Scott** discovered

This tool comes in a range of sizes and is invaluable for repair work that doesn't involve dismantling

Rouen, Normandie, just five hours from Sussex, was in medieval times the biggest city in northern Europe. Among the cultural legacy of flamboyant churches and carved timber-framed houses in the Old Town are small workshops where craftsmen still work at benches behind shop windows just a few feet from passing pedestrians.

There I met luthier Bernard Baptiste. Luckily his English is better than my French so I was able to glean his story. His first job was making church windows but he decided to move on to a 3-year course in Mirecourt, in the east of France, a town famous for instrument makers, under master luthier Jean Jaques Pages – www.pagesluthier.fr. Bernard's next step was to gain a place at the extensive instrument workshops of Christian Clement in Paris. Many types of musical instruments are made and restored there in a culture of self-teaching and knowledge sharing. There he extended his under-

standing of other stringed instruments, studying their finer points and principles.

At just 31 years of age he now has an impressive repertoire of abilities and his own shop. He recognised early in his career the market for offering a repair service beyond violins to musical disciplines and instruments from all over the world. His reputation is growing – if you can strum it or bow it he can, it seems, fix it.

Like architecture

Violin makers work in spruce, maple and ebony with a kit of highly specialised tools. The 'f' hole of the violin is something that evolved over centuries. The formula is absolute.

I commented that despite some decades of working with wood I remain amazed how stringed instruments, especially guitars, are made of such thin sections of timber – as little as 2mm can take the force of tightened strings being stretched and strummed. "It is architec-

tural," Bernard told me. Every part of the structure was thought out long ago and of course there is the selection of timbers. He showed me a Brazilian caraqueno he was making for a special order, a short, thick-bodied guitar-like instrument – ebony for the fretboard, spruce for the front with lemon decorative features, pearwood back and for the sides pearwood, from another region, that is grown on a hillside for different qualities. The knowledge and choice of timbers is probably the most exacting of any woodworking.

Noticing several instruments hanging from the beams in different stages of polish or varnish I asked what finishing materials he favoured. He pointed to a bottle and shrugged. "Varnish," he said. I took a look at the contents of the bottle and it appeared to be shellac. Beside it was a packet of cotton material, was it fadding? In clumsy French I enquired if it involved a build-up of several varied layers. It does. One of the apprentices pointed to a



Works in progress



A handmade guitar with inlaid body and carved machine head



The tools are few and basic



An apprentice cutting mahogany for inlay



Jean-Marc Sarhan at the job he has done for 41 years



A forest of fiddles



Spare parts

guitar with the appropriate high-build sheen. Of course, we're talking French polish here! I tried to explain that's what we call it in Britain and that French polishing is a trade in its own right. In France it's just varnishing! On factory instruments this is nowadays done with a sprayable chemical. This will undoubtedly be one of the factors in the creation of a great, rather than adequate, sound.

Musical museum

Currently on display, in various stages of construction or restoration, were guitars: classical, steel stringed, large-bodied Django Reinhardt-style swing guitars with the distinctive oval sound hole; violins, violas, cellos, ukuleles, banjos, a Chinese bulbul, the Brazilian caraqueno. There is also a Syrian rebab, a slender stringed instrument with a leather front, which he has replaced. I am impressed at this being quite a departure from woodwork. "It's just like re-skinning a banjo," he told me matter of factly.

This tiny shop doubles as a musical museum.

On the wall is an antique German sitar violin, apparently a sought-after instrument for which he has had many offers but he prefers to have it there so that violinists who visit his shop will have an opportunity to play on a classic instrument.

Repairs are his most lucrative source of income but an interesting additional idea is buying in new Chinese cellos and violins. They arrive in a factory-finish state with the finer points ignored, but all the basics are there. By replacing the fretboard with properly finished ebony and various other refinements he can turn them around to create an orchestra-quality instrument.

Veteran maker

Just up the road is the shop of another luthier, distinguished with a violin-shaped door handle. Jean Luc Sarhan also trained in Mirecourt, but some decades before. He has specialised in making and repairing violins, cellos and double basses for 41 years. He handles them with the critical familiarity of the craftsman and he too seems very content in his work.

Hanging from the oak beams was a forest of instruments and components. He buys old instruments for restoration and resale, takes in repairs

A simple shop window display that suggests the proprietor knows what he is doing

and makes new instruments when he has the time. This conversation was all in French but we got by. Hanging on the wall was a range of sizes of curious, precisely shaped and sharply pointed metal bars, whose function was not at all obvious. He demonstrated. They are for inserting glue blocks, spiked onto the bar through the 'f' hole in order to place it precisely to repair or improve an instrument without dismantling it.

There were nests of finely made clamps, extremely precise with two thread bars to cater for minute variations of pressure, a long way from the brute force of the G-clamp. He showed me a selection of tiny brass-bodied planes, some only as long as the thickness of a finger, for the precise shaping of the curves of the body. They buy the plane bodies and grind their own blades to suit, some with a combed cutting edge; steel from old fine files is ideal, I gather.

For any would-be students of instrument making this area, behind the church of Saint Maclou, would be a rewarding detour. Great food to be had there too!



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Woody strikes Gold

This month these pages are being given over to the tremendous achievement of Edward 'Woody' Harringman who is bringing back to the UK a gold medal that singles him out as the best young maker in the world.

At Sao Paulo, Brazil, he beat 23 other competitors from around the globe to take the WorldSkills cabinetmaking title, and in so doing joins George Callow, 23, who won Gold at Leipzig in 2013.

The 21-year-old had to make a side table with a drawer and two doors from a local timber, which he was not used to working in.

Woody, who runs Harringman Cabinetmaking from his Whatlington, near Battle, East Sussex workshop, said: "It feels fantastic. I'm really happy and relieved. It's been a long road. It's taken four years and a lot of sacrifices, so to end it on a high note makes it all worth it."

50% project change

Like George, he was coached by Chichester College's Christian Notley who gave *GW* this eye witness report of the final: "While we knew the project six weeks before, so have been practising in the run up in the college workshops, we knew that it would have a minimum of 30% change, but this turned out to be 50%. Woody only found out the changes one hour before he had to start. Together we had developed a plan of action but as we did not know the final changes this had to remain flexible. Woody took all this in his stride and hit the first day of the four-day, 22-hour competition hard and worked fast."

Woody added: "Timing was the biggest challenge – there was a lot of work involved, which meant I had to work flat out for four days straight and only finished in the last 10 seconds.

"How do I feel now? Very happy and relieved! It's a long journey but it

MAKER
OF THE
MONTH



ended on a really high note. I've learned a lot about the quality of other countries' cabinetmaking and their different styles of working. It's also been great to learn about the cabinetmaking industry from an international perspective. What an experience!

Christian was anxiously watching from the sidelines: "Every day I was allowed 15 minutes at the beginning of the day and end of the day at his workstation to talk about strategy and his plans.

"At stages during the competition Woody had to hand parts and joints in to be judged before he glued them. I would discuss and make suggestions to him on the best time to hand these in and his plan for the day but in the end Woody was making it so he had the final say.

All to do

"He kept his cool throughout despite being under huge pressure. During his break we had discussed that he was not to look at any of the other competitors' work but just walk off the stand without looking right or left, which he did despite the huge urge to know how the others were doing. It can be really off-putting to see others' work; either you think you are ahead which you may or may not be as competitors cover up their work so as not to give anything away, or even worse you could see something which makes you think you've done something wrong, which can be devastating.

"Each day he did brilliantly but was dropping behind our plan so on the final day, four hours of working time, he had made all the components of the project but had nothing standing so had a lot to do. We both knew it was possible but was going to be really hard, not quite as we planned it. Woody texted me before the start of the final day 'so four years of training has come down to four hours of work' – he was in the cycle for 2013 as well, but didn't get in the team.

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Golden boys: Woody Harringman, left, with George Callow who won Gold two years ago



Tutor Christian Notley, left, shares the victory flag with Woody

Up to the wire

“The horn sounded to start, I couldn’t watch, I had to be on the stand as all experts from each country do to make sure everything is fair. I kept to the far side of the stand pacing up and down, checking on other countries but trying not to look and thinking, has he done this or that yet. He knew what he had to do and worked like mad to get it finished. I did look across a few times and could see it slowly going together, or it seemed slow to me but also time was flying. I knew he was fighting to the last second and wouldn’t give up.

“As the clock moved towards 1pm, the finishing time, I slowly moved over to his work area and could see it was standing. For the last minute I was standing feet away as he checked every surface and dimension. Only when the horn blew did he look up and see me and the crowd of Team UK supporters standing outside to give him a huge cheer.

“He said to me, ‘I knew it was possible but did not realise just how hard those last hours where going to be’. We were both welling up as we realised he had done it.”

Medal tally

But Woody had to wait until the following evening and the WorldSkills Sao Paulo closing ceremony before he found out the results of his effort,

Fine tradition

Edward is the fifth Chichester College student to represent the College on the WorldSkills stage, and the fourth to enter in the cabinetmaking category, behind George, Chris Wallace, who entered in 2011, and Luke Griffiths, who received a Medal of Excellence in 2009.



Woody feared he was going to run out of time before he could complete his winning piece

winning the first Gold of the evening for Team UK. (The squad’s final medal tally was: three Gold, four Silver, two Bronze medals and 24 Medallions of Excellence, two of these going to Joinery contestant Dale Hodgins and Carpentry’s Owain Jones.)

Christian first met Woody at a woodshow with his dad at WL West near Midhurst when he was 15, and the following year he joined Chichester College’s Furniture department, making a 110-mile daily round trip from Battle.

He has competed in countless competitions over the years to reach this point, gaining his place in the UK team by winning the WorldSkills selection contest earlier in the year.

Understandably he said: “I never want to make another competition piece of furniture again.” But then, when you’ve reached the top you don’t really need to!

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Around the House

with Phil Davy



Many years ago I worked in a large joinery. As an unskilled joiner – before I qualified – most of the work

was incredibly tedious, assembling loads of melamine-faced chipboard cupboard and drawer units for educational establishments. The colours probably didn't help – think drab mushroom and olive – which rapidly lost their appeal. To relieve the monotony I would sometimes start sweeping the extensive workshop floor, which seemed to go down well with management and was actually quite satisfying. Not long after that I decided to obtain my City & Guilds qualifications. Who would have thought that sweeping up could be so interesting, though!

Phil Davy, Consultant Editor

Book review

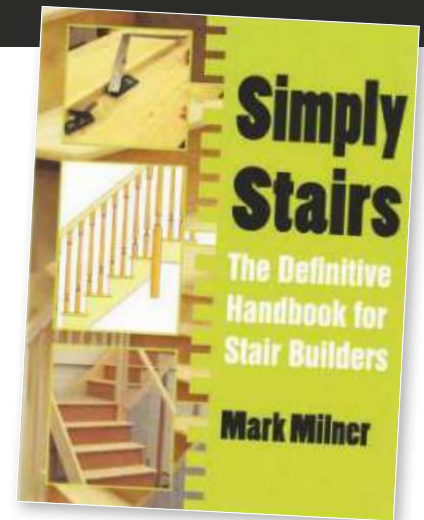
Simple Stairs

by Mark Milner

Although making a flight of stairs may seem fairly straightforward to an experienced woodworker, unless you've actually built some, to avoid disaster there's a lot to consider. Besides geometry, calculations for rise and goings, stairwell dimensions, storey rods and setting out, there are router templates, newel post and handrail construction to think about, not to mention Building Regulations. Life becomes more complicated when you introduce winders, curtail steps and landings, not to mention circular stairs with matching curved handrails. It's no wonder that some joinery companies specialise in staircase construction and nothing else.

As far as I'm aware, this is the first book that deals solely with this topic in considerable depth. With a background in college lecturing, assessment and City and Guilds consultancy, Milner has spared no detail here and is clearly an expert. Assuming you have a large enough space to work in, there's everything you need to know to build a pretty respectable staircase.

As you'd expect, this is a pretty technical



book and possibly not ideal bedtime reading! Photos are mostly black & white, though there are a few colour pictures included. Plenty of diagrams will help you understand many of the finer points of construction, too. Top stuff if you fancy a real challenge.



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Q&A

Perfect mitres

Q I'm considering making some picture frames, though don't want to spend too much money on a powered mitre saw. What is the best way to cut mitres in rebated moulding accurately and consistently, please?
H Atkinson, Essex

A If you only want to make a few frames then the cheapest way to cut moulding is to make a simple mitre box from three pieces of straight hardwood screwed and glued together to form a channel. Slots are cut at 45° degrees across the top to guide a back saw (tenon or dovetail), which is then used to saw through the moulding placed in the channel. The trickiest part is cutting the

initial 45° angles, which must be spot-on. Saw slots will become sloppy the more the box is used, though ready-made mitre boxes (beech or plastic) can have adjustable saw guides to compensate. A mitre square is useful for checking accuracy, or even a combination square, which incorporates a 45° angle. For tweaking mitres on moulding or beading a small disc sander with fence set at 45° is ideal; alternatively, a finely-set block plane.

The next step up would be a hand mitre saw. Avoid dirt-cheap tools, although you can buy a reasonable saw for around £30 (www.axminster.co.uk). At the top end a Nobex Proman will set you back around £85, though you could buy a small powered saw for that!




Autumn project

Takes: **couple of weekends**

ALCOVE FIT-OUT

All neat & tidy

Phil Davy builds cupboards and shelving in an alcove for books and TV

 There's no doubt that built-in cupboards generally look better than freestanding units in most locations. With their bungalow refurbishment almost completed, recent customers wanted an alcove alongside the livingroom fireplace to be used for books, while the top of the cupboard would house the TV. Fairly straightforward, though everywhere had been decorated, which meant making minimal mess.

Although each situation varies, it generally makes little difference whether you build a cupboard or shelving first. I used 25mm-thick MDF for almost everything (rather than 19mm material) as a row of hardback books is almost guaranteed to make anything less substantial sag. Heavier shelves tend to look better, too, especially when front edges are rounded over. These were supported by 45 × 20mm battens screwed to the walls. Counterboring enables you to plug the holes, so fixings are hidden. Although a bit more work, visually this is much neater than leaving exposed screw heads.

I've found making a template from either cardboard or 6mm MDF is almost essential when fitting shelves. No matter how

square and true walls appear to be, it's far easier to spend time getting a template to fit exactly if you want a decent finish. Cut shelves deeper than they need to be so that you can cut them back along the front edge once they're a snug fit in the opening.



Torus architrave

The shelving was framed with torus architrave around the opening. Here the customers wanted it flush with the walls, though I'd usually prefer it set back by about 10mm to create a shadow line.

Doors are easy to make with a mitre saw and biscuit jointer, although you could just as easily use pocket screws for joining stiles and rails. These are made from 75 × 25mm PAR softwood, while panels are 6mm MDF, a loose fit in grooves routed around the inner edges. For a Shaker-style cupboard you could just leave the doors as they are, although adding beading really does improve things visually.

As living room and kitchen were open plan I decided to use concealed hinges for the cupboard doors, continuing the kitchen unit style. If you've not used these hinges before it's best to make a mock-up first to prevent you drilling stiles in the wrong position. Irrespective of brand, most fit into 35mm holes drilled in the rear of the door, although you

Tools you'll need

Circular saw, mitre saw, router, sander, hammer drill, biscuit jointer



can get smaller hinges that require a 26mm hole. There are numerous variations when it comes to opening angles, clip-on or slide-on fittings, soft-close, sprung or unsprung and so on. You'd also need to decide whether doors are overlay or inset, which would affect overall size when building them in the first place.

Fortunately, I didn't need to paint the finished shelves and cupboard as a willing father was happy to carry out that work...



1 Bare alcove ready for cupboard. Cover floor with dust sheets to protect laminate or carpet

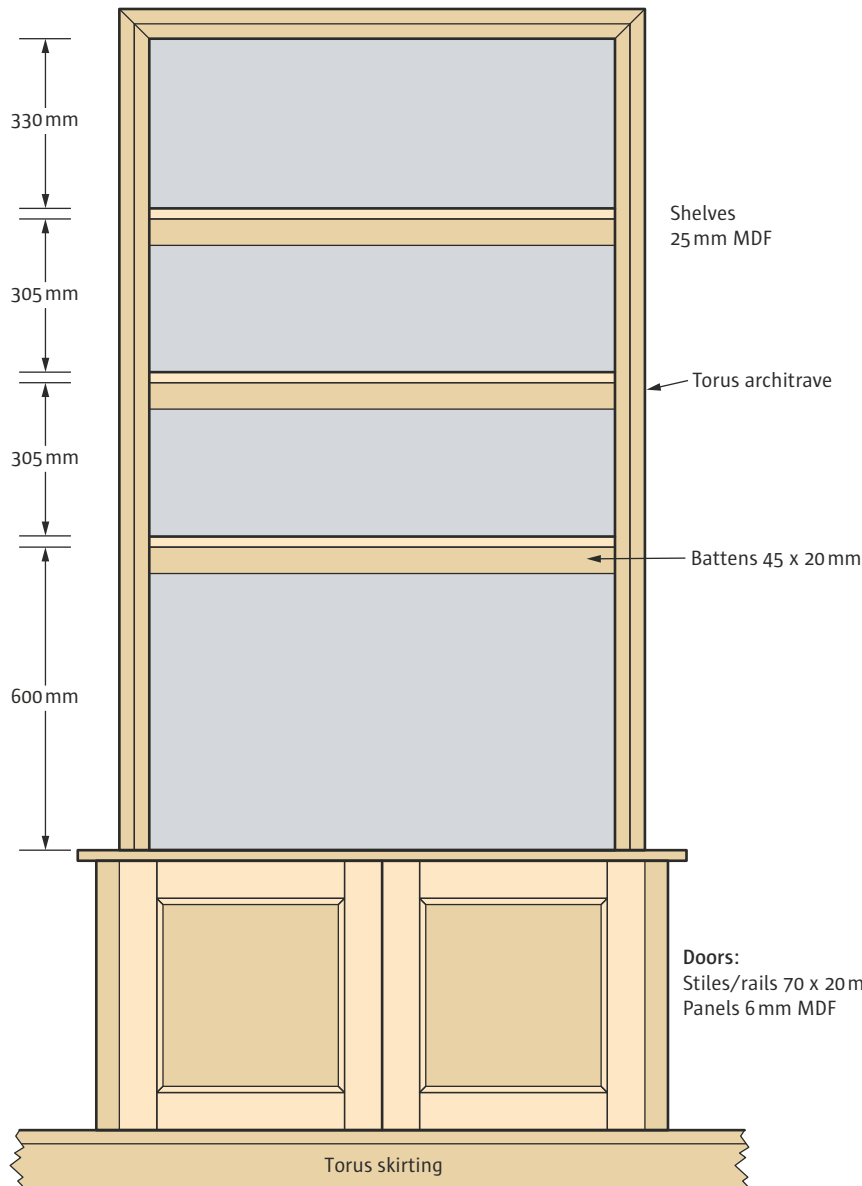


2 Before drilling walls use an electronic detector to check for concealed cables or pipework



3 Determine shelf spacing (measure tallest books) and mark out positions for support battens

Fig 1



4 Drill and counterbore battens for 5mm screws. Mark rear wall, drill with masonry bit and insert plugs



5 Screw batten to rear wall first, followed by overlength side supports. Check for level and adjust if necessary



6 With side battens fixed temporarily, mark thickness of architrave across ends with spirit level



Takes: **couple of weekends**

ALCOVE FIT-OUT



7 Remove side battens and saw to length. Replace these and check architrave is flush with wall



8 Cut matching softwood plugs, either with router or bench drill. Glue and insert into counterbored holes



9 When dry, cut off heads with flush-trim saw. Clean up with chisel if still proud, then sand battens



10 Cardboard template ensures each shelf can be cut accurately. Scribe along sides and back of alcove



11 Trim template with knife and check. Place on oversize piece of MDF and draw around perimeter



12 Carefully cut MDF to size with jigsaw. Lift each shelf into alcove and trim edges for snug fit



13 Front edge of TV shelf protrudes past opening. Scribe rear edge on both sides and cut to fit



14 Mark line of front edge on each shelf. Cut MDF with circular saw running against guide clamp



15 With combination square mark off ends of TV shelf. Cut to length and plane leading edges of shelves



16 Rout leading edges with bearing-guided rounding-over cutter. Stop profile short at each end of shelves



17 Screw batten to ceiling to give solid fixing for horizontal architrave. Use correct plugs to suit ceiling material



18 Measure horizontal and vertical architrave sections and carefully cut to length on mitre saw



19 Cramp vertical architrave in position and check fit of top piece. Trim mitres if necessary with block plane



20 Place all shelves on supports. Secure with screws through rear edges down into support battens



21 To finish flush with skirting, base of cupboard sits on plinth. Build from MDF and screw sections together



22 Door hinges are fixed to 19mm MDF uprights. Fix these securely to walls with 5mm screws



23 Doors are from 75 x 25mm PAR softwood. Saw rails to exact length but allow for waste on stiles



24 Rails and stiles are jointed with No.20 biscuits. Adjust jointer and cut biscuit slots on all timber



25 Door panels are from 6mm MDF. Rout groove around inner edges of rails and stiles with slotting cutter



26 Check panel is sliding fit in groove without being too tight. Depth should be about 10mm



27 Dry assemble doors and adjust if necessary. After applying PVA glue on mating surfaces, insert biscuits in slots



28 Cramp up doors on level surface. Check accuracy with try square or measure across the diagonals



29 When glue has dried cut off horns with handsaw, leaving slightly proud. Trim flush with plane



30 True up front and rear faces of doors with bench plane. Check surfaces with steel straightedge

Takes: **couple of weekends**

ALCOVE FIT-OUT



31 Hold doors in cupboard opening and mark where tight. Ideally, gap should be about 1.5mm all round



32 Plane up edges if required, working in towards centre when trimming end-grain at top and bottom



33 Concealed hinges can be tricky to fit, so make mock-up of door first to get hole position exactly right



34 Mark and bore holes in door stiles with 35mm Forstner bit mounted in drillstand. Check hinges fit snugly



35 Use bradawl to mark hole centres for fixing screws. Drill stiles and fit hinges to each door



36 Wedge each door in cupboard opening and mark position of mounting screws. Drill and insert screws



37 Decide position of handles or knobs and drill clearance holes for bolts. Tighten nuts on rear of doors



38 Decorative beading adds touch of elegance. Cut to length on mitre saw and glue to MDF panels



39 To complete cupboard add MDF reveals to either side. These are glued and nailed in place



40 Cut and nail skirting to perimeter of cupboard. You may need to make tricky cuts here



41 Drill hole in rear of TV shelf big enough for mains plugs to pass through. Use hole saw for clean edge



42 Fit magnetic catches to underside of TV shelf. Finally, adjust hinges and check that doors open smoothly

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Sweet charity



Les Thorne
goes all
arty with
this delicate

piece inspired by a
thrift shop find

Regular readers will know that I find inspiration from many different things. As I travel around I am always on the lookout for new shapes and projects.

This particular object is a match-up of two ideas that have been filed in the back of my mind for a while. The base comes from a shape that I saw in a charity shop a little while ago; while management is sorting through the party frocks, I tend to look at the glass and wood ware – even that brown and green glass from the '70s is sometimes in pleasing designs – and it's here that I found this classical urn shape.

I had intended to make a larger pot for this article but as normal my over-active mind thought what would it look like with a lid and a finial on it. The popularity among hobby turners for fine finials like this can be attributed to craftsmen and women such as Robert Chapman from Kent and Cindy Drozda from America. It does make the piece a bit useless as it is somewhat delicate, but hey, that's part of the fun of it. For easier working, shorten the base and the finial.



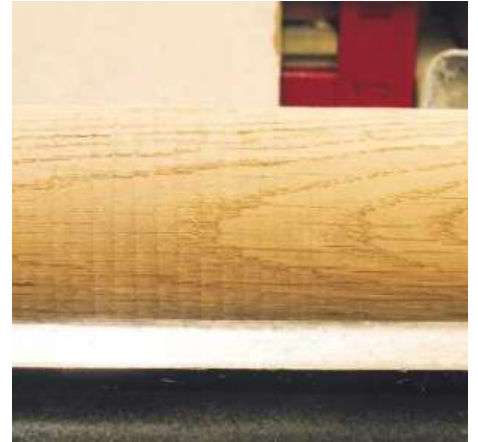
Decorative pedestal box



▲ Pic.1 Les thought it expedient to practise on pine, but the oak box is going to have a slightly different finial to the one in pine as he didn't like the shape of the first one. The size of the oak is 225 x 70mm square



▲ Pic.2 Mount the oak between centres and make it round using the centre – the strongest part – of the spindle roughing gouge. The wings of the tool can be used for the fine finishing cuts



▲ Pic.3 The rings on the left are caused by traversing the tool too quickly along the rest, but on the other end they are about right. Put a chucking point on each end and mount it on your chuck



▲ Pic.4 A ratio of $\frac{2}{3}$ ths to $\frac{3}{4}$ ths is about the right proportion for this box. Getting this right can be trial and error, but the more experienced you become the easier this will be



▲ Pic.5 After deciding where the lid is going to be cut in about 10mm deep and 10mm wide for the spigot, make an incision with the 1.5mm parting tool to mark the cutting-off point



▲ Pic.6 Cut the lid away from the base using a fine-tooth saw. You could also do it under power if you are confident doing this with a parting tool, but the lid section is still quite a lump of wood



▲ Pic.7 Hold the pattern up against the base section. Even though Les is not making a pair he is pleased with the shape of the pine one so doesn't intend to change it too much



▲ Pic.8 Use the 13mm spindle gouge to define the top shape of the bowl. Put minimal shape on the outside at this stage, so as to maintain the strength for interior hollowing



▲ Pic.9 With only half the outside shape done, hollow out the bowl section. A pull but with the spindle gouge is ideal, starting at the centre and drawing the tool towards you

Turning



▲ Pic.10 Once you have achieved the basic shape you will need to cut a recess for the lid to fit into. It will need to be a nice fit but the size can be adjusted on the lid part



▲ Pic.11 Over the past few years Les has started to grind his scrapers like this. The bevel on the top gives it a negative rake, making the tool less likely to dig in



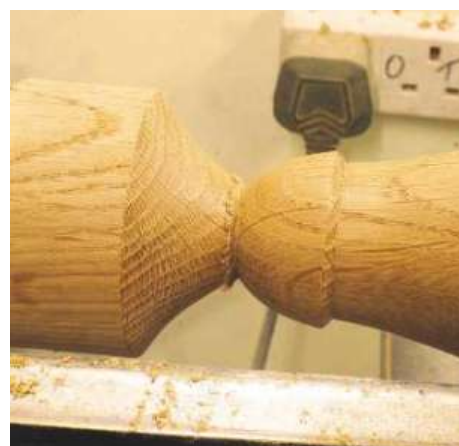
▲ Pic.12 The tool is presented horizontal on the rest and cutting on the centreline. To achieve the best finish remove only small amounts of timber and keep the tool on the move



▲ Pic.13 Once you are happy with the inside shape you can start to remove the excess wood from the outside, keeping the bevel of the tool in contact and working it down in stages



▲ Pic.14 There is no better gauge for measuring the wall thickness than your fingers. You can go back into the centre if you haven't got the shape quite right, as long as the base isn't too narrow



▲ Pic.15 The swell at the bottom is something you see in stoneware, and it will add strength to the piece. Having more than one chuck means the piece can be left mounted on one while the lid section is turned



▲ Pic.16 The lid section is now mounted in another chuck. Clean off the bottom of the lid – putting detail on it proves that you have turned it, adding a little class to the piece



▲ Pic.17 Using a tool or abrasive, make sure the spigot on the lid fits the base. You are looking for a nice tight fit, which makes a popping sound when you remove it



▲ Pic.18 Remove as much of the waste as you can while it's being held in the chuck. Les has reduced it to about 25mm in diameter but you could take it down even more

Decorative pedestal box



▲ Pic.19 Mount the base back onto the lathe. The lid is put on and the tailstock is brought up for support. It's imperative that your centres line up at this stage as you are going thin



▲ Pic.20 Turn the end down to about 8mm, but leaving about 10mm waste on the end to be sure that you have removed the hole left by the centre



▲ Pic.21 The 10mm skew is being used to form the flame detail, which will be the top of the finial. Using the point of the skew will allow Les to get right into the tight detail



▲ Pic.22 If you want to turn thin you will have to learn to support the work with your fingers as here. The micro bevelled tool is ideal for this as it puts very little pressure on the timber



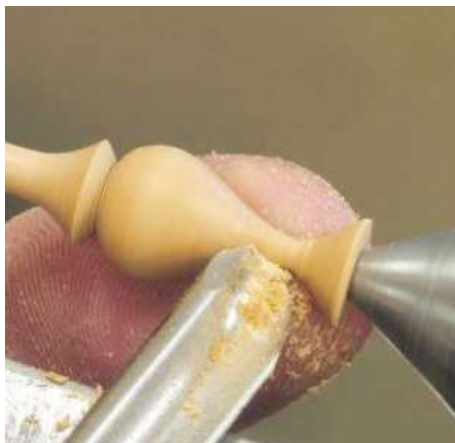
▲ Pic.23 The gun barrel bead is a very traditional design and is in keeping with the project. The tiny fillet on either side helps to define the detail



▲ Pic.24 After a couple of boxes Les is still not happy with the lid detail, cut with some difficulty with a skew, but he's hoping this can remain a secret between you and him



▲ Pic.25 Please make sure that your fingers are underneath the toolrest when supporting your work like this. Work the finial down in stages, cutting in the direction of the chuck



▲ Pic.26 With the finial complete, remove the tailstock support by just finishing the flame shape. Make very small supported cuts until the piece is free, sanding to shape if necessary



▲ Pic.27 When sanding the finial use abrasive cut into 25mm strips. This will stop you rounding over the crisp detail, but be careful about any loose threads as they can wrap around and break it



▲ Pic.28 Put the sanded lid to one side and finish turning the base section. When working up near the chuck make sure you start the cut like this to stop the tool skating along the wood into the chuck



▲ Pic.29 The stem design is different from the pine prototype, and the ball is turned with the skew. Don't make the stem on the base too thin as it will not look balanced



▲ Pic.30 Les likes to put this detail on all his bases, undercutting the edge of the base to create a shadow. Give yourself enough clearance from the chuck to be able to make this cut



▲ Pic.31 He opted for a lime effect. Use a brass liming brush to clean out the grain. This will not scratch the wood if, wherever possible, you work in the direction of the grain



▲ Pic.32 Rub the liming wax into the grain using a rag. Make sure the grain is filled up, protecting your hands with some disposable gloves as it does get under your fingernails



▲ Pic.33 10 minutes later wipe off the excess with a soft rag, then use a paste wax over the top for a glossier finish. You can see here how it has defined the grain



▲ Pic.34 To part off, use the parting tool right handed, lean over the lathe and grip the work with your left hand, making sure that nothing can get caught up in the lathe



▲ Pic.35 The work is a little delicate for mounting on the lathe and cleaning up the underside of the base so Les mounted a sanding arbor in the pillar drill and progressed through the grits from 120 to 400



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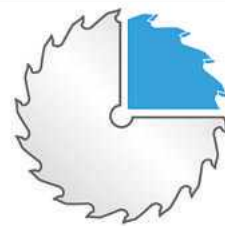
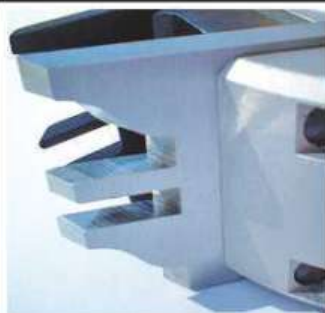
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PLUS...



Tony 'Bodger' Scott makes a high-chair for his grand-daughter; Michael Huntley talks finishing; Phil Davy makes a wall-mounted display/shelving unit in Douglas fir, and Edward Hopkins talks log sheds and workshop stoves

Finishing Touch

Michael Huntley's Origin of terms



Turning a few fine legs at a course at the Weald & Downland Museum near Chichester, West Sussex

A group of historical woodworking terms has its origin in the trade system. Here are a few of the more commonly found ones, starting with the word *bodger* used to refer to a chairmaker. There are a number of explanations for this word such as “the wood-turner only makes legs which are put into a seat, thus making half a chair, Solutions: Dave Roberts explores Savonarola Down Under which makes the chair incomplete and therefore ‘bodged’.” Wikipedia also offers a number of explanations. The *Oxford English Dictionary* offers a possible association with the Middle English term

botched. However, the authority on regional chairs, Dr Bernard Cotton, who wrote the standard work, believes that the term is a popular 20th-century name that has been erroneously repeated from one writer to another. There are no references to *bodgers* in the 1841 or 1851 census for High Wycombe – the centre of Windsor chair making – although there are several references to other specialist aspects of chair making such as *borer*, *bottomer*, *back maker*, *turner* and so on. Had the term *bodger* been in common use it would have appeared in the census list of occupations.

An interesting group of terms comprises *Carpenter*, *Arkwright*, *Joiner*, *Cabinet-maker*. These are much easier to find in historical documents. *Carpenter* comes from the French *carpentier*. This in turn comes from the Latin *carpentrius*. As mentioned last month ‘modern’ English carpentry techniques came over from France with William the Conqueror in 1066. The Old English word for builder was *wright*. Thus an *arkwright* was a builder of chests. The term *ark* for a chest came from the Latin *arca*. The word *arwright* had ceased to be used by Tudor times, and was superseded by *joyner*, later to become *joiner*. This referred to a man who used joints to hold furniture together. A simple example would be a joint stool, and more recently, *cabinet-maker*, which began to be used in the late 17th century and is used to this day.

Further reading

www.woodworkinghistory.com/glossary_C_Cabinetmaker_etc.htm

Dr. Bernard D. Cotton, *The English Regional Chair*, Antique Collectors’ Club, 2001

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